Value Engineering Study Report

Project – CSSTP-0008-00(651)
P.I. No. – 0008651
Bridge Replacement @ Skidaway Narrows
And
Project – STP-00MS(4)
P.I. No. – 550550
Widening of SR 204 SPUR/Diamond Causeway

Chatham County

Value Management Team

Design Team

October 2007

October 26, 2007

Ms. Lisa Myers
Design Review Engineer Manager
Georgia Department of Transportation
#2 Capitol Square, Room 266
Atlanta, GA 30334

RE: Submittal of the final Value Engineering Report
Project – CSSTP-0008-00(651) – P.I. No. 0008651
Bridge Replacement @ Skidaway Narrows
Project – STP-00MS(4) – P.I. No. 550550
Widening of SR 204 SPUR/Diamond Causeway
County - Chatham
PBS&J Project Task Order No. 19

Dear Ms. Myers:

Please find enclosed four (4) hard copies and a CD of our final Value Engineering Report for the Bridge Replacement @ Skidaway Narrows and the widening of SR 204 SPUR/Diamond Causeway, Chatham County, as referenced above.

This Value Engineering Study, which was performed during the period of October 9 through October 12, 2007, identified **28 Alternative Ideas,** of which **7 are recommended for implementation**. The VE Team also identified **13 Design Suggestion Ideas** which are recommended for the Engineer to consider in his final design. We believe that the **7 Alternative Ideas** recommended may have a significant positive affect on the project.

We trust that you will find this report to be in proper order. It should be noted that the results of this workshop are volatile in that they can be overcome by the events that accompany the expeditious continuance of the design process. Accordingly, we encourage an equally expeditious implementation meeting to design the disposition of the contents of this report.

On behalf of our VE Team, we thank you very much for this opportunity to work with you and the hard working staff of the Georgia Department of Transportation.

Yours truly,
PBS&J

Les M. Thomas, P.E., CVS-Life
VE Team Leader

Value Engineering Study Report

Project – CSSTP-0008-00(651)
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And
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Chatham County

Table of Contents

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

This section summarizes the analysis and conclusions by the PBS&J Value Engineering workshop team as they performed a VE study during the period of October 9 – October 12, 2007 in Atlanta, at the office of the Georgia Department of Transportation. The subject of the Value Engineering study was Project CSSTP-0008-00(651)- P.I. 0008651- widening of SR 204 SPUR/Diamond Causeway Project STP-00MS(4) – P.I. 550550 – replacement of the bridge @ Skidaway Narrows.. The concept designs for the projects have been prepared by GDOT. At the time of the workshop the plans had advanced to the concept design level.

PROJECT DESCRIPTION

Project CSSTP-0008-00(651) consists of constructing a new two-lane high level bridge replacement for the existing Bascule Bridge over Skidaway Narrows in Chatham County, Georgia. The bridge replacement has been requested by Chatham County as an immediate need and will be constructed prior to Project STP-00MS(4).

Project STP-00MS(4) will then widen SR 204 /SPUR to four-lanes and provide a companion parallel bridge over Skidaway Narrows, as well as new bridges across the Moon River. The length of this project is 3.22 miles along SR 204 SPUR/Diamond Causeway from Ferguson Avenue to McWhorter Drive. Estimated construction time is 24 months.

The projected construction cost for CSSTP-0008-00(651) is $13,462,464 plus a 10% E & C rate of $1,346,246; for a total project budget of $14,808,710

The projected construction cost for STP-00MS(4) is $28,578,374 plus a 10% E & C rate of $2,857,837; for a total project budget of $31,436,211.

These projects are rather fully described in the documentation that is located in Tab 4 of this report, entitled ***Project Description.***

PROJECT CONCERNS AND OBJECTIVES

Some of the information from the concept report and the designer's presentation indicated the following important points about the projects:

- The existing Bascule Bridge has become unreliable. Accordingly, the GDOT has prioritized the immediate replacement of this bridge using a design build methodology.
- There are significant historical properties along the roadways which must be preserved and protected.
- There are significant wetlands adjacent to the existing roadway and it is important to limit impacts to them.
- The construction of the projects needs to be highly organized to limit impacts to the users during construction. Also, the construction needs to respect the environment and aesthics.

VALUE ENGINEERING PROCESS

The Value Engineering team followed the seven step Value Engineering job plan as promulgated by the Georgia Department of Transportation. This seven step job plan includes the following:

- Investigative
- Analysis
- Speculation
- Evaluation
- Development
- Recommendation
- Presentation

This report is a component of the Presentation Phase. As part of the VE workshop in Atlanta, the team made an informal presentation of their results on the last morning of the workshop. This report is intended to formalize the workshop results and set the stage for a formal implementation meeting in which alternatives and design suggestions will typically be accepted, accepted with modifications, or rejected for cause. The worksheet that follows, along with the formally developed alternatives and design suggestions can be used as a "score sheet" for the implementation meeting. It is also included in this report to identify, on a summary basis, the results of the workshop. The reader is encouraged to visit the third tabbed section of this report entitled ***Study Results*** for a review of the details of the developed alternatives. The tabbed section ***Project Description*** includes information about the project itself and the tabbed section ***Value Engineering Process*** presents the detail process of the Value Engineering Study.

CONCLUSIONS AND RECOMMENDATIONS

During the speculation phase the VE Team identified ***28 Alternative Ideas*** that appeared to hold potential for reducing the construction cost, improving the end product and/or reducing the difficulty and time of project construction.

After the evaluation phase was completed, **7** ***Alternative Ideas*** and **13 Design Suggestions** remained for further consideration. These Alternative Ideas and Design Suggestions may be found, in their documented form, in the section of this report entitled ***Study Results***. The following ***Summary of Alternatives and Design Suggestions*** coupled with the documentation of the developed alternatives should provide the reader with the information required to fully evaluate the merits of each of the alternatives.

These and the other alternatives and design suggestions may be reviewed more thoroughly where they are documented in the third tab of this report entitled ***Study Results***.

SUMMARY OF ALTERNATIVES & DESIGN SUGGESTIONS

Georgia Department of Transportation

Bridge Replacement @ Skidaway Narrows CSSTP-0008-00(651) P.I. No. 0008651

Alternative Number	Description of Alternative	Initial Cost Savings
	Skidaway Narrows New Bridge (SNNB)	
SNNB-1	Build single structure, as opposed to dual structure	$4,804,525.00
SNNB-2	Use sheet pile for shoring in lieu of temporary MSE Wall	$1,386,000.00
SNNB-3	Use 8' outside shoulders in-lieu-of 10" shoulders	$902,000.00
SNNB-5	Use longer approach spans to reduce mitigation	DS
SNNB-8	Approach DNR about use of "removed bridge" in reef building as a mitigation tool	DS
	Skidaway Narrows Roadway (SNRW)	
SNRW-1	Modify western tie geometry to utilize more existing pavement	$190,124.00
SNRW-2	Further develop Traffic Control Plan to minimize Traffic Control costs/avoid duplication	DS
SNRW-3	Expand eastbound acceleration lane to accommodate marina traffic	DS

SUMMARY OF ALTERNATIVES & DESIGN SUGGESTIONS

Georgia Department of Transportation

Widening of SR 204 SPUR/Diamond Causeway - STP-00MS(4) - PI No. 550550

Alternative Number	Description of Alternative	Initial Cost Savings
	Skidaway Narrows New Bridge (SNNB)	
DCRW-1	Retain "Jug Handle"	DS
DCRW-2	Move west end pier parking to north side of roadway – eliminate east crossover	DS
DCRW-3	Shift transition to Skidaway Island State Park to the west	DS
DCRW-4	Consider use of "eyebrows" at potential U-turn locations (Pin Point Community)	DS
DCRW-5	Close median opening at Sta 166+00	DS
DCRW-6	Extend Moon River easterly access parking to the west	DS
DCRW-7	Utilize 10' median with positive barrier from Sta 180+00 to Sta 242+00	$23,212 *
	* Does not include savings for potential wetland impact reduction.	
	Moon River Bridge (MRB)	
MRB-1	Modify existing deck in lieu of widening	$642,817
MRB-2	Route pedestrian and bike lane onto new bridge in lieu of widening existing bridge	DS
MRB-4	Re-evaluate existing structure for new bridge	DS
	Diamond Causeway/Skidaway Narrows Bridge (DCSNB)	
DCSN-1	Use 8' wide outside and 4' inside shoulders in lieu-of 10' shoulders	$1,804,000.00
DCSN-3	Use longer approach spans to reduce mitigation	DS

Study Results

Study Results

Introduction

This section includes the study results presented in the form of fully developed Value Engineering alternatives that include descriptions of the original design, description of the alternative design configurations, comments on the technical justifications, opportunities and risks associated with the alternatives, sketches, calculations and technical justification for these alternatives. For the most part, these fully developed alternatives represent an array of choices that clearly could have an impact on the eventual cost and performance of the finished project.

The documented alternatives also include Design Suggestions (DS). As their name implies, these are short write-ups making note of VE perspectives on technical issues and sharing some thoughts for consideration as the design moves forward.

This introductory sheet is followed by a ***Summary of Alternatives & Design Suggestions*** table. It should be noted that the alternatives that are included, which have cost estimates attached are not necessarily representative of the final cost outcome for each alternative. Some of these alternatives have components that are mutually exclusive so they may not be added together.

The users of this report are asked to consider these alternatives and design suggestions as a smorgasbord of choices for selection and use as the project moves forward. The following *Summary of Alternatives & Design Suggestions* may also be used as a "score sheet" within the bounds of an implementation meeting.

Cost Calculations

The cost calculations are intended only as a guide to the approximate results that might be expected from implementation of the alternatives. They should be helpful in making clear choices as to the pursuit of individual alternatives.

A composite mark-up of 10% for the construction cost comparisons was derived from the cost estimate for the project. This estimate can be found in the section of this report entitled ***Project Description.***

SUMMARY OF ALTERNATIVES & DESIGN SUGGESTIONS

Georgia Department of Transportation

Bridge Replacement @ Skidaway Narrows CSSTP-0008-00(651) P.I. No. 0008651

Alternative Number	Description of Alternative	Initial Cost Savings
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SNNB-1	Build single structure, as opposed to dual structure	$4,804,525.00
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	Skidaway Narrows Roadway (SNRW)	
SNRW-1	Modify western tie geometry to utilize more existing pavement	$190,124.00
SNRW-2	Further develop Traffic Control Plan to minimize Traffic Control costs/avoid duplication	DS
SNRW-3	Expand eastbound acceleration lane to accommodate marina traffic	DS

SUMMARY OF ALTERNATIVES & DESIGN SUGGESTIONS

Georgia Department of Transportation

Widening of SR 204 SPUR/Diamond Causeway - STP-00MS(4) - PI No. 550550

Alternative Number	Description of Alternative	Initial Cost Savings
	Skidaway Narrows New Bridge (SNNB)	
DCRW-1	Retain "Jug Handle"	DS
DCRW-2	Move west end pier parking to north side of roadway – eliminate east crossover	DS
DCRW-3	Shift transition to Skidaway Island State Park to the west	DS
DCRW-4	Consider use of "eyebrows" at potential U-turn locations (Pin Point Community)	DS
DCRW-5	Close median opening at Sta 166+00	DS
DCRW-6	Extend Moon River easterly access parking to the west	DS
DCRW-7	Utilize 10' median with positive barrier from Sta 180+00 to Sta 242+00	$23,212 *
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	Diamond Causeway/Skidaway Narrows Bridge (DCSNB)	
DCSN-1	Use 8' wide outside and 4' inside shoulders in lieu-of 10' shoulders	$1,804,000.00
DCSN-3	Use longer approach spans to reduce mitigation	DS

Value Analysis Design Alternative

PROJECT: **Georgia Department of Transportation**
CSSTP-0008-00(651) - P.I. No. 0008651
Bridge Replacement @ Skidaway Narrows – Chatham County

ALTERNATIVE NO.: **SNNB-1**

DESCRIPTION: **BUILD SINGLE STRUCTURE AS OPPOSED TO DUAL STRUCTURE**

SHEET NO.: 1 of 4

Original Design: (At the time of the VE study the project was in the conceptual phase and no bridge plans or elevations were available. The discussion below is based on information provided by the designers and certain assumptions).

The original design calls for the construction of a 2050' long bridge over Skidaway Narrows under this contract and followed soon after with the construction of an identical twin bridge in place of the existing Bascule bridge under contract STP-00MS(4). The bridge is 48' wide and accommodates 2-12 ft travel lanes, 2-10' bike able shoulders and standard barriers.

Alternative:

The alternative recommends the construction of a single wide bridge to accommodate 4 lanes and carry bi-directional traffic in-lieu of twin structures. Other geometry and components of the project would remain the same as in the original design. Additionally, removal of the existing bridge may be limited to the center span (steel draw bridge portion) only leaving the approach spans in place to serve as a fishing pier.

Opportunities:

- Potential savings in construction cost and construction time
- Reduce environmental disturbance in the wetland and, hence, mitigation costs
- Reduced cost for partial demolition

Risks:

- Minimal change to the concept and design effort
- Some design exceptions may be required

Technical Discussion:

The single wide bridge may be constructed to accommodate 8' outside shoulders, 4' inside shoulders, 2-12' travel lanes in each direction, a median barrier for positive traffic separation and standard barrier rails for a total width of 77'-6" as opposed to two structures each of 48' width. (Note that Chapter 7 " Rural and Urban Arterials", Section under "Shoulders", page 455 of the AASHTO – Geometric Design of Highways and Streets, allows the use of 8' outside and 4' inside shoulders on "Long Bridges").

In comparing costs of original design and alternative, $100 per square foot has been assumed for the bridge construction. A more detailed cost analysis may be performed when the bridge design progresses sufficiently to be able to itemize major components. A detailed analysis may show greater cost savings than that shown below. Detailed estimate should include savings in substructure components (piles, or caissons, piers, caps, and superstructure components and mitigation costs.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 4,804,525	$	$ 4,804,525
ALTERNATIVE	$ 0	$	$ 0
SAVINGS	$ 4,804,525	$	$ 4,804,525

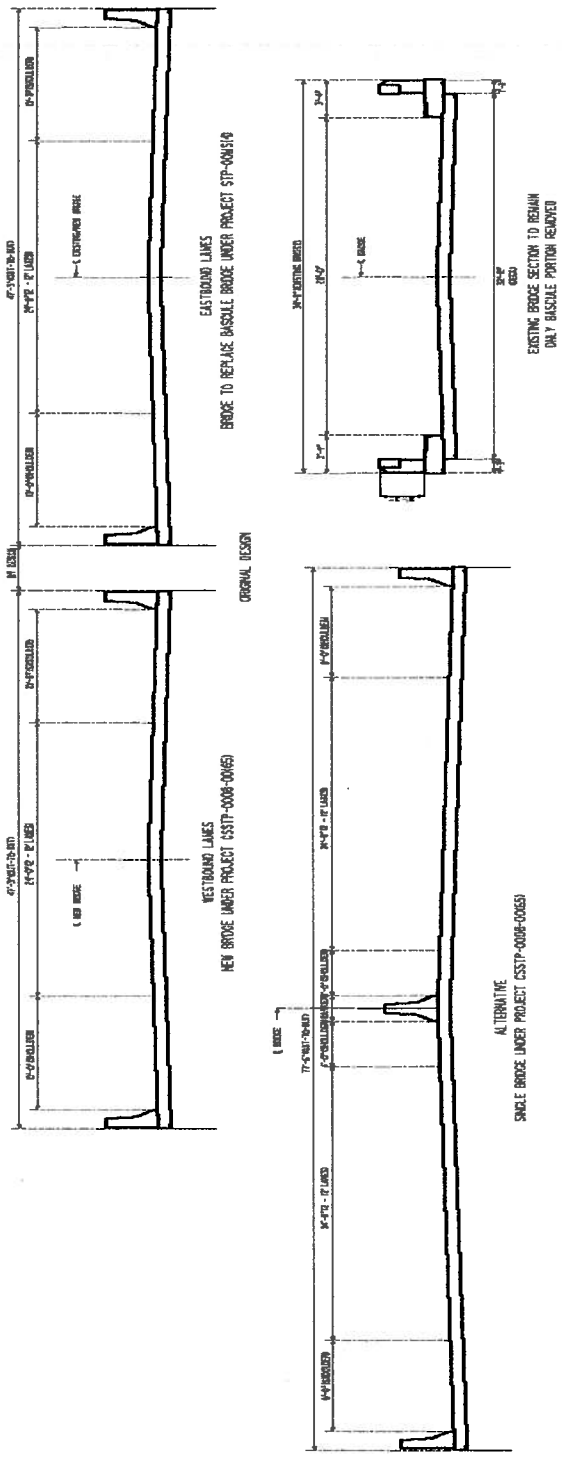
Illustrations

PROJECT: **Georgia Department of Transportation**
CSSTP-0008-00(651) –P.I. No. 0008651
Bridge Replacement @ Skidaway Narrows – Chatham County

ALTERNATIVE NO. : **SNNB-1**

DESCRIPTION: **BUILD SINGLE STRUCTURE AS OPPOSED TO DUAL STRUCTURE**

SHEET NO.: 2 of 4



PROJECT: **Georgia Department of Transportation – CSSTP-0008-00(651) –P.I. No. 0008651 Bridge Replacement @ Skidaway Narrows – Chatham County**

ALTERNATIVE NO.: **SNNB-1**

DESCRIPTION: **BUILD SINGLE STRUCTURE AS OPPOSED TO DUAL STRUCTURE**

Note:

1) The VE team is cognizant of the fact that the project design is in its concept phase.
2) Calculations below are based on the Bridge Cross sections provided at the time of the VE study.
3) Costs savings are based on reduction of structure width from the current design.
4) Since the substructure design had not been completed at the time of the VE study and existing conditions were not available, certain assumptions have been made.

Current Design:

Twin 48' wide bridges and Bascule bridge removal.

Alternative SNNB-1:

This alternative proposes building a single structure 77'-6" wide.

Reduction in width of Deck = [2*48' – 77.5'] = 18.5'
Area of reduced bridge surface = [18.5' X 2050'] = 37,925 SF
Reduction due to Partial Bridge Removal (Movable Portion of bascule Bridge) = [1-(150'/1313')] = 88.5%

{In comparing costs of original design and alternative, $100 per square foot has been assumed for the bridge construction. A more detailed cost analysis may be performed when the bridge design progresses sufficiently to be able to itemize major components. A detailed analysis may show greater cost savings than that shown below. Detailed estimate should include savings in substructure components (piles, or caissons, piers, caps, and superstructure components and mitigation costs.}

NOTE:

Reduction from current design = savings for alternative.

Cost of Bridge Construction assumed to be $100 per SF.

COST WORKSHEET

PBS&J

PROJECT:	Georgia Department of Transportation CSSTP-0008-00(651) –P.I. No. 0008651 Bridge Replacement @ Skidaway Narrows – Chatham County	ALTERNATIVE NO.:	**SNNB-1**
DESCRIPTION:	**BUILD SINGLE STRUCTURE AS OPPOSED TO DUAL STRUCTURE**	SHEET NO.:	4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Bridge	SF	37925	$ 100.00	$3,792,500.00	0	$ 100.00	$0.00
Bridge removal	Ratio	88.50%	$ 650,000.00	$575,250.00	0	$ 650,000.00	$0.00
Note: Bridge removal cost based on estimate provided in Concept Report at the time of VE Study.							
(This is the cost that would be incurred for the current design)							
Sub-total				$4,367,750			$0
Mark-up at 10.00%				$436,775			$0
TOTAL				**$4,804,525**			**$0**

Value Analysis Design Alternative

PBSJ

PROJECT:	**Georgia Department of Transportation** **CSSTP-0008-00(651) - PI. # 0008651** **Bridge Replacement at Skidaway Narrows - Chatham County**	ALTERNATIVE NO.:	**SNNB-2**
DESCRIPTION:	**USE SHEET PILE FOR SHORING IN LIEU OF TEMPORARY MSE WALL.**	SHEET NO.:	1 of 3

Original Design:

Original design utilizes MSE wall for retention during construction of the new, higher span of the structure to replace the existing bascule bridge. The bascule bridge must remain in service during construction of the new bridge to accommodate traffic. The grade differential of the existing and proposed structure will necessitate a positive retention system to ensure traffic is maintained on the bascule bridge during the construction phase of the new structure.

Alternative:

Use sheet piling in lieu of MSE wall to provide positive retention during construction.

Opportunities:

- Time savings during construction phase.
- Cost savings.

Risks:

- Sheet piling may not be as aesthetically pleasing as an MSE wall.
- Minimal design impacts.

Technical Discussion:

The use of sheet piling in lieu of MSE wall would result in cost and time savings for the project. The condition necessitating the retaining structure is a temporary one, abating concerns about the lesser aesthetic value of sheet piling as opposed to MSE wall.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 2,376,000	$	$ 2,376,000
ALTERNATIVE	$ 990,000	$	$ 990,000
SAVINGS	$ 1,386,000	$	$ 1,386,000

Calculations

PBS&J

PROJECT: **Georgia Department of Transportation**
CSSTP-0008-00(651) - PI. # 0008651
Bridge Replacement at Skidaway Narrows- Chatham County

ALTERNATIVE NO.: **SNNB-2**

DESCRIPTION: **USE SHEET PILE FOR SHORING IN LIEU OF TEMPORARY MSE WALL.**

A. Concept estimate cost for MSE wall- $2,160,000 (36,000 SF @ 60.00/SF)

Construction mark-up @ 10%=$216,000

Original concept total cost- **$2,376,000**

B. Proposed concept utilizing sheet piling in lieu of MSE wall- $900,000 (36,000 SF @ $25.00/SF)

Construction mark-up @ 10%=$90,000

Proposed total cost-**$990,000**

C. Potential Savings- $2,376,000 - $990,000= **$1,386,000**

COST WORKSHEET

PBSJ

PROJECT:	Georgia Department of Transportation CSSTP-0008-00(651) - PI. # 0008651 Bridge Replacement at Skidaway Narrows - Chatham County		ALTERNATIVE NO.:	SNNB-2
DESCRIPTION:	USE SHEET PILE FOR SHORING IN LIEU OF TEMPORARY MSE WALL.		SHEET NO.:	3 of 3

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
MSE WALL FACE, 10-20 FT HT	SF	36,000	$ 60.00	$2,160,000.00	$ -	$ 60.00	$ -
SHEET PILING (INSTALLED AND REMOVED)	SF				$ 36,000.00	$ 25.00	$ 900,000.00
	Sub-total			$2,160,000.00			$ 900,000.00
Mark-up at	10.00%			$ 216,000.00			$ 90,000.00
	TOTAL			$2,376,000.00			$ 990,000.00

Value Analysis Design Alternative

PBS&J

PROJECT: **Georgia Department of Transportation**
CSSTP-0008-00(651) –P.I. No. 0008651
Bridge Replacement @ Skidaway Narrows – Chatham County

ALTERNATIVE NO.:

SNNB-3

DESCRIPTION: **USE 8' SHOULDERS IN-LIEU OF 10' SHOULDERS**

SHEET NO.: 1 of 4

Original Design:

(At the time of the VE study the project was in the conceptual phase and no bridge plans or elevations were available. The discussion below is based on information provided by the designers and certain assumptions).

The original design calls for the construction of a 2050' long bridge over Skidaway Narrows under this contract and followed soon after with the construction of an identical twin bridge in place of the existing Bascule bridge under contract STP-00MS(4). The bridge is 47-3" wide and accommodates 2-12 ft travel lanes, 2-10' bike able shoulders and standard barriers.

Alternative:

The alternative recommends the construction of the bridge in under this contract to accommodate 2-12' lanes to carry bi-directional traffic during construction staging and 8' bike able shoulders in-lieu of 10' shoulders. Other geometry and components of the project would remain the same as in the original design.

Opportunities:

- Potential savings in construction cost and construction time

Risks:

- Minimal change to the concept and design effort

Technical Discussion:

The bridge may be constructed to accommodate 8' outside shoulders, 2-12' travel lanes and standard barriers for a total width of 43'-3" as opposed to a 47'-3" width in the original design.

Note that Chapter 7 "Rural and Urban Arterials", Section under "Shoulders", page 455 of the AASHTO – Geometric Design of Highways and Streets, allows the use of 8' outside and 4' inside shoulders on "Long Bridges".

In comparing costs of original design and alternative, $100 per square foot has been assumed for the bridge construction. A more detailed cost analysis may be performed when the bridge design progresses sufficiently to be able to itemize major components. A detailed analysis may show greater cost savings than that shown below.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 902,000	$	$ 902,000
ALTERNATIVE	$ 0	$	$ 0
SAVINGS	$ 902,000	$	$ 902,000

Illustrations

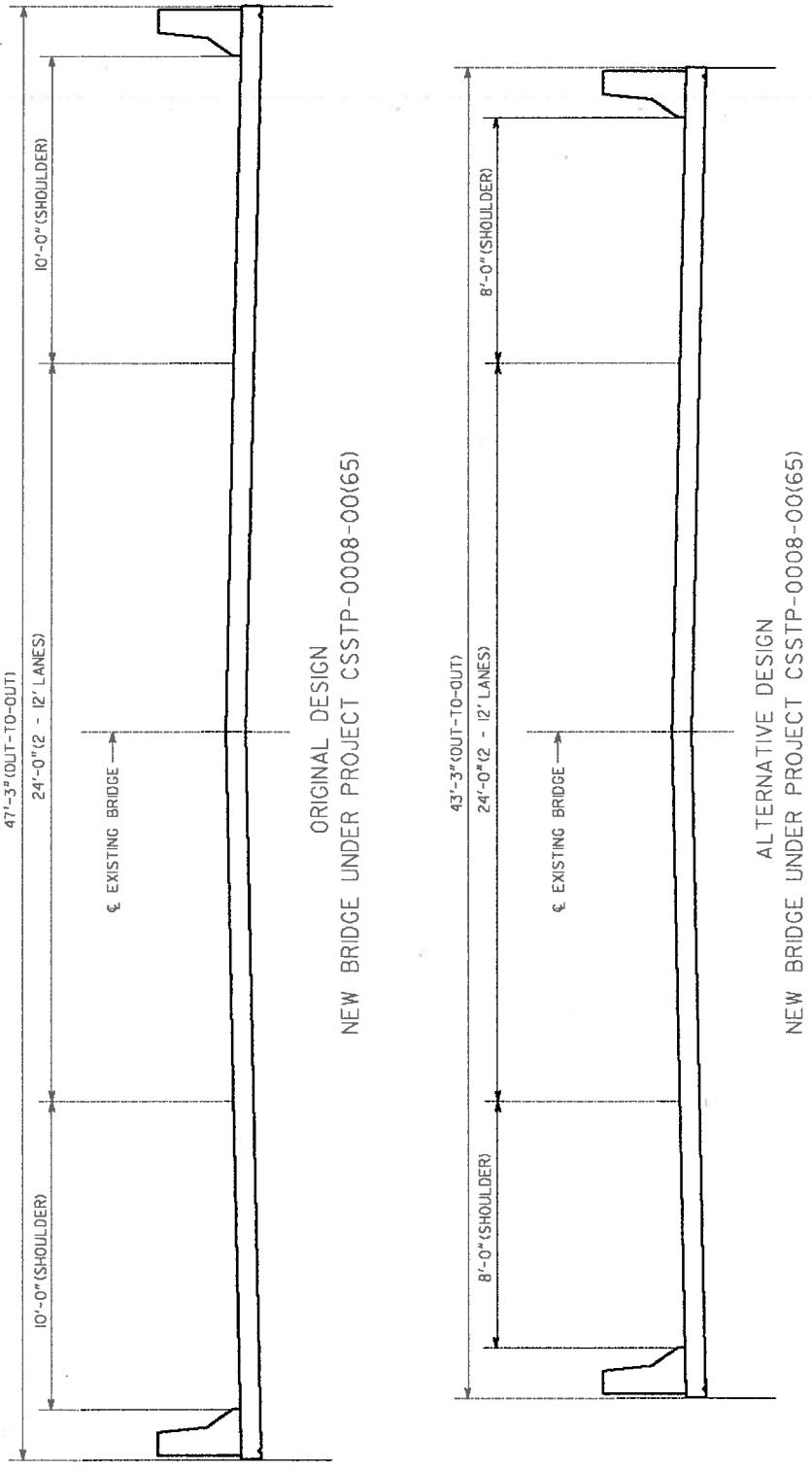
PROJECT: **Georgia Department of Transportation**
CSSTP-0008-00(651) –P.I. No. 0008651
Bridge Replacement @ Skidaway Narrows – Chatham County

ALTERNATIVE NO.:

SNNB-3

DESCRIPTION: **USE 8' SHOULDERS IN-LIEU OF 10' SHOULDERS**

SHEET NO.: 2 of 4



PROJECT:	**Georgia Department of Transportation** **CSSTP-0008-00(651) – P.I. No. 0008651** **Bridge Replacement @ Skidaway Narrows – Chatham County**	ALTERNATIVE NO.: **SNNB-3**
DESCRIPTION:	**USE 8' SHOULDERS IN-LIEU OF 10' SHOULDERS**	SHEET NO.: 3 of 4

Note:

1) The VE team is cognizant of the fact that the project design is in its concept phase.
2) Calculations below are based on the Bridge Cross sections provided at the time of the VE study.
3) Costs savings are based on reduction of structure width from the current design.
4) Since the substructure design had not been completed at the time of the VE study and existing conditions were not available, certain assumptions have been made.

Current Design:

47'-3" wide bridge under this contract.

Alternative SNNB-3:

This alternative proposes building a single structure 43'-3" wide.

Reduction in width of Deck = [47.25' – 43.25'] = 4'
Area of reduced bridge surface = [4' X 2050'] = 8,200 SF

{In comparing costs of original design and alternative, $100 per square foot has been assumed for the bridge construction. A more detailed cost analysis may be performed when the bridge design progresses sufficiently to be able to itemize major components. A detailed analysis may show greater cost savings than that shown below.}

NOTE:

Reduction from current design = savings for alternative.

Cost of Bridge Construction assumed to be $100 per SF.

COST WORKSHEET

PROJECT: Georgia Department of Transportation
CSSTP-0008-00(651) – P.I. No. 0008651
Bridge Replacement @ Skidaway Narrows – Chatham County

ALTERNATIVE NO.: **SNNB-3**

DESCRIPTION: **USE 8' SHOULDERS IN-LIEU OF 10' SHOULDERS**

SHEET NO.: 4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Bridge	SF	8200	$ 100.00	$820,000.00	0	$ 100.00	$0.00
(This is the cost that would be incurred for the current design)							
Sub-total				$820,000			$0
Mark-up at 10.00%				$82,000			$0
TOTAL				**$902,000**			**$0**

Value Analysis Design Suggestion

PROJECT: **Georgia Department of Transportation**
CSSTP-0008-00(651) – P.I. No. 0008651
Bridge Replacement @ Skidaway Narrows – Chatham County

ALTERNATIVE NO.: **SNNB-5**

DESCRIPTION: **USE LONGER SPANS TO REDUCE MITIGATION**

SHEET NO.: **1** of **1**

Original Design:

(At the time of the VE study the project was in the conceptual phase and no bridge plans or elevations were available. The discussion below is based on information provided by the designers and certain assumptions).

The original design calls for the construction of a 2050' long bridge over Skidaway Narrows under this contract and followed soon after with the construction of an identical twin bridge in place of the existing Bascule bridge under contract STP-00MS(4). **The center span over the navigable waterway is expected to be 250' with the immediate adjacent spans at about 200'. The remaining 1400' of bridge is assumed to be made up of 20 equal 70' spans.** The bridge is 48' wide and accommodates 2-12 ft travel lanes, 2-10' bike able shoulders and standard barriers.

Alternative:

The alternative recommends the construction of the bridge of similar geometry but with longer approach span arrangements (possibly up to 140').

Opportunities:

- Reduce number of intermediate bents
- Reduce environmental disturbance in the wetland and, hence, mitigation costs
- Potential savings in construction cost and construction time

Risks:

- Minimal re-design impact.

Technical Discussion:

Using longer spans of up to 140' can be constructed by using BT 72 Girders.

The bridge carries traffic over Skidaway Narrows and the adjacent flood plain / wetlands. The area is under the influence of backwaters from the Savannah River and the Atlantic Ocean and, hence, a designated wetland.

Utilizing fewer bents for the construction of the bridge will reduce environmental impacts and mitigation costs.

Value Analysis Design Suggestion

PROJECT: **Georgia Department of Transportation – CSSTP-0008-00(651) - PI #0008651 Bridge Replacement @ Skidaway Narrows-Chatham County**

ALTERNATIVE NO.: **SNNB-8**

DESCRIPTION: **APPROACH DNR ABOUT USE OF "REMOVED BRIDGE" IN REEF BUILDING PROGRAM AS A MITIGATION TOOL**

SHEET NO.: 1 of 1

Original Design:

The Original Design proposes removal of the bridge but makes no recommendation regarding disposal.

Alternative:

Discuss with the Department of Natural Resources about the possibility of utilizing the existing structure to build an artificial offshore reef.

Opportunities:

- Reduction of mitigation.
- Reduction in disposal cost

Risks:

- None

Technical Discussion:

The project impacts saltwater wetlands/estuaries. While the use of the bridge structure as an artificial reef does not directly replace the impacted wetlands it does improve the overall habitat and has value in an environmental mitigation program. The placement and preparation of the structure as an artificial reef would likely have to be coordinated through DNR and meet the standards of their reef building program.

Value Analysis Design Alternative

PBS&J

PROJECT:	**Georgia Department of Transportation** **CSSTP-0008-00(651) - PI #0008651** **Bridge Replacement @ Skidaway Narrows-Chatham County**	ALTERNATIVE NO.:	**SNRW-1**
DESCRIPTION:	**MODIFY THE GEOMETRY AT WESTERN TIE (BEGIN PROJECT) TO UTILIZE MORE EXISTING PAVEMENT.**	SHEET NO.:	1 of 4

Original Design:

The crossover/transition from the existing roadway to the "new roadway" extends from Station 580+00 to Station 597+50.

Alternative:

The alternative design would shorten the transition and move it to ~ Station 588+00 to Station 597+50. This will accomplished be extending the back tangent and introducing an ~1500' radius to create a compound curve on the western approach to the moon river bridge

Opportunities:

- Reduce the amount of required paving.
- Less modification to existing pavement to be retained.

Risks:

- Minimal design effort.

Technical Discussion:

By reducing and relocating the crossover/transition at the "Begin Project" you can decrease the amount of paving and the modification.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 772,200.00	$	$ 772,200.00
ALTERNATIVE	$ 582,076.00	$	$ 582,076.00
SAVINGS	$ 190,124.00	$	$ 190,124.00

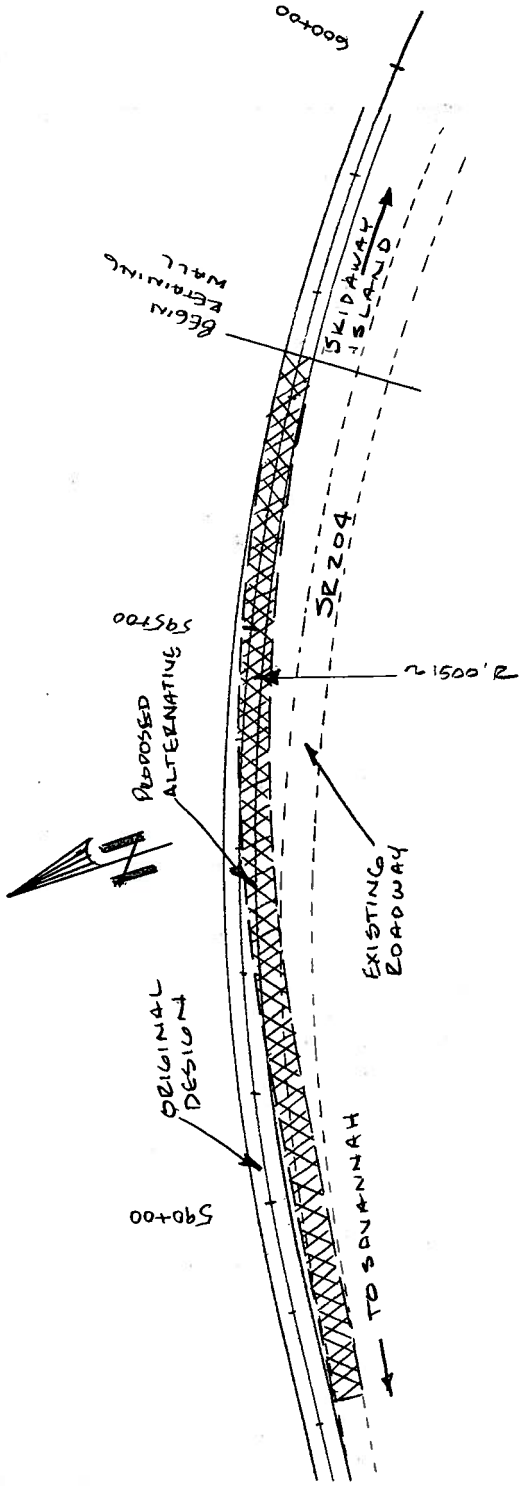
Illustrations

PROJECT: **Georgia Department of Transportation**
CSSTP-0008-00(651) - PI #0008651
Bridge Replacement @ Skidaway Narrows-Chatham County

ALTERNATIVE NO.: **SNRW-1**

DESCRIPTION: **MODIFY THE GEOMETRY AT WESTERN TIE (BEGIN PROJECT) TO UTILIZE MORE EXISTING PAVEMENT.**

SHEET NO.: 2 of 4



Calculations

PROJECT: **Georgia Department of Transportation**
CSSTP-0008-00(651) - PI #0008651
Bridge Replacement @ Skidaway Narrows-Chatham County

ALTERNATIVE NO.: **SNRW-1**

DESCRIPTION: **MODIFY THE GEOMETRY AT WESTERN TIE (BEGIN PROJECT) TO UTILIZE MORE EXISTING PAVEMENT**

Original Design - STA. 597+50 – STA. 580+00 = 1750 lf

full depth paving area: (1750 lf X 24 ft) => 42000 sf
shoulder paving area: (1750 lf X 13 ft)) => 22750 sf

Alternative Design - STA. 597+50 – STA. 588+00 = 950 lf

full depth paving area: (950 lf X 24 ft) => 22800 sf
shoulder paving area: (950 lf X 13 ft) => 12350 sf

Reduction –

full depth paving area: 42000 sf - 22800 sf = 19200 sf
shoulder paving area: 22750 sf -12350 sf = 10400 sf

AFFECTED PAY ITEMS: Original- Reduction = Alternative

Original-

TYPE II BACKFILL- 1500 cy
10" GAB- 8200 tons
12.5 mm Superpave- 1100 tons
19.0 mm Superpave- 1500 tons
25.0 mm Superpave- 3000 tons

Reduction-

TYPE II BACKFILL- (19200 sf x 1 ft) / (27 cf/cy) => 710 cy
10" GAB- [19200 sf x 10"/(12"/ft) x 135#/cf] / (2000#/ton) => 1080 tons
12.5 mm Superpave- [(19200 sf + 10400sf) / (9sf/sy)] x [(165#/sy) / (2000#/ton)] => 272 tons
19.0 mm Superpave- [(19200 sf + 10400sf) / (9sf/sy)] x [(220#/sy) / (2000#/ton)] => 362 tons
25.0 mm Superpave- [(19200 sf + 10400sf) / (9sf/sy)] x [(440#/sy) / (2000#/ton)] => 724 tons

Alternative-

TYPE II BACKFILL- 1500 cy - 710 cy = 790 cy
10" GAB- 8200 tons - 1080 tons = 7120 tons
12.5 mm Superpave- 1100 tons - 272 tons = 828 tons
19.0 mm Superpave- 1500 tons - 362 tons = 1138 tons
25.0 mm Superpave- 3000 tons – 724 tons= 2276 tons

COST WORKSHEET

PROJECT:	**Georgia Department of Transportation CSSTP-0008-00(651)-PI #0008651 Bridge Replacement @ Skidaway Narrows-Chatham County**	ALTERNATIVE NO.:	**SNRW-1**
DESCRIPTION:	**MODIFY THE GEOMETRY AT WESTERN TIE (BEGIN PROJECT) TO UTILIZE MORE EXISTING PAVEMENT.**	SHEET NO.:	4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
TYPE II BACKFILL	CY	1500	$ 60.00	$ 90,000.00	790	$ 60.00	$ 47,400.00
G.A.B. 10"	TN	8200	$ 20.00	$ 164,000.00	7120	$ 20.00	$ 142,400.00
12.5 mm SUPERPAVE	TN	1100	$ 80.00	$ 88,000.00	828	$ 80.00	$ 66,240.00
19.0 mm SUPERPAVE	TN	1500	$ 80.00	$ 120,000.00	1138	$ 80.00	$ 91,040.00
25.0 mm SUPERPAVE	TN	3000	$ 80.00	$ 240,000.00	2276	$ 80.00	$ 182,080.00
Sub-total				$ 702,000.00			$ 529,160.00
Mark-up at 10.00%				$ 70,200.00			$ 52,916.00
TOTAL				**$ 772,200.00**			**$ 582,076.00**

Value Analysis Design Suggestion

PBS&J

PROJECT: **Georgia Department of Transportation**
CSSTP-0008-00(651) - PI #0008651
Bridge Replacement @ Skidaway Narrows-Chatham County

ALTERNATIVE NO.: **SNRW-2**

DESCRIPTION: **DEVELOP TRAFFIC CONTROL PLAN TO MINIMIZE COSTS AND AVOID DUPLICATION.**

SHEET NO.: 1 of 1

Original Design:

Original cost estimate calls for $2,926,200 allotted for traffic control for the project life, representing 10% of the project budget.

Alternative:

Develop a traffic control plan to more accurately estimate the costs associated with maintaining a safe work zone throughout construction of the project. Traffic control costs will likely be found to be less once a traffic control plan is generated for project implementation.

Opportunities:

- Significant cost savings.
- Phasing during construction could reduce traffic control redundancy.

Risks:

- Minimal design impacts.

Technical Discussion:

A traffic control plan will be generated and implemented as a part of the construction plans. It is anticipated that traffic control costs will be lower than the amount budgeted ($2,926,200) due to a number of factors. First, bridge construction will not occur under active lanes of traffic. The phasing appears to construct the new bridge segments while maintaining the existing structure to support traffic until the new construction is completed. Thus, two comprehensive traffic control schemes for bridge construction should be avoided.

Also, the overall project length (3.22 miles) should not require temporary positive separation (i.e. Jersey Rail). Construction of the new roadway will take place outside of active traffic, as two lanes of bi-directional traffic will be maintained while construction of the new roadway goes forward outside of the travel way. The traffic control plan does not appear to be overly complex, and much of the sum allocated by concept estimates may be able to be utilized elsewhere in the construction of this project.

Value Analysis Design Suggestion

PBS&J

PROJECT: **Georgia Department of Transportation – CSSTP-0008-00(651) Bridge Replacement @ Skidaway Narrows-Chatham County-PI #0008651**

ALTERNATIVE NO.: **SNRW-3**

DESCRIPTION: **LENGTHEN EASTBOUND ACCELERATION LANE TO ACCOMMODATE MARINA TRAFFIC**

SHEET NO.: 1 of 1

Original Design: The Original Design provides an acceleration lane of approximately 100'.

Alternative: The Alternative Design is to provide an acceleration lane of approximately 500'.

Opportunities:

- Improve safety and operations.

Risks:

- Minimal design impact.
- Additional construction cost.

Technical Discussion: The current design requires marina traffic going eastbound on SR 204 to make a 190^ -200^ turn going up a 5% grade. The acceleration lane may be extended 500' to 600' without impacting the bridge design. This should significantly improve the ability of motorist towing boats to achieve an acceptable speed and safely merge with traffic.

Value Analysis Design Suggestion

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - PI #550550
Widening of SR 204 SPUR/Diamond Causeway

ALTERNATIVE NO.: **DCRW-1**

DESCRIPTION: **RETAIN "JUG HANDLE"**

SHEET NO.: 1 of 1

Original Design:

The Original Design proposes eliminating the indirect u-turn/left turn (Jug Handle) at Skidaway State Park Road.

Alternative:

The Alternative Design proposes retaining the Jug Handle in the proposed project.

Opportunities:

- Provide a U-turn for Marina Traffic.

Risks:

- Minimal design impact.
- Minimal maintenance and construction cost.

Technical Discussion:

The Jug Handle provides an opportunity for boats, RV's and other long wheel based vehicles to more easily negotiate a U-turn back to Savannah or a left turn into Skidaway State Park. The designers have stated that the facility has shown little use in the past, however with the geometric modifications to SR 204 at the marina the number of wrong way vehicles that must U-turn before the Gated areas on Skidaway Island should increase.

Value Analysis Design Suggestion

PBSJ

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - PI #550550
Widening of SR 204 SPUR/Diamond Causeway

ALTERNATIVE NO.: **DCRW-2**

DESCRIPTION: **MOVE THE "WESTEND" PIER PARKING TO THE NORTH SIDE OF THE ROADWAY AND ELIMINATE THE CROSSOVER AT STATION ~ 166+00**

SHEET NO.: 1 of 3

Original Design:

The Original Design provides parking and Moon River pier access with two proposed improved parking areas. Both parking areas are on the south side of SR 204. The parking area on the west end of the bridge has right-in/right-out ingress-egress and is accessible solely from the eastbound direction. The parking area on the east end of the bridge is accessible from both directions via a right turn from the eastbound direction or a left turn at the median crossover ~ Station 166+00.

Alternative:

The Alternative would propose locating the parking on the west end of the Moon River bridge to the north side of the roadway.

Opportunities:

- Eliminate a median crossover

Risks:

- Minimal design impact
- Potential for minimal increase in wetland impacts

Technical Discussion:

By relocating the western parking area to the north side of the bridge, making the access to both parking areas right-in/right-out and removing the crossover at Station 166+00 you will eliminate the left turn conflict at the cross-over. The proposed crossover is located within 800' of another crossover just to the east.

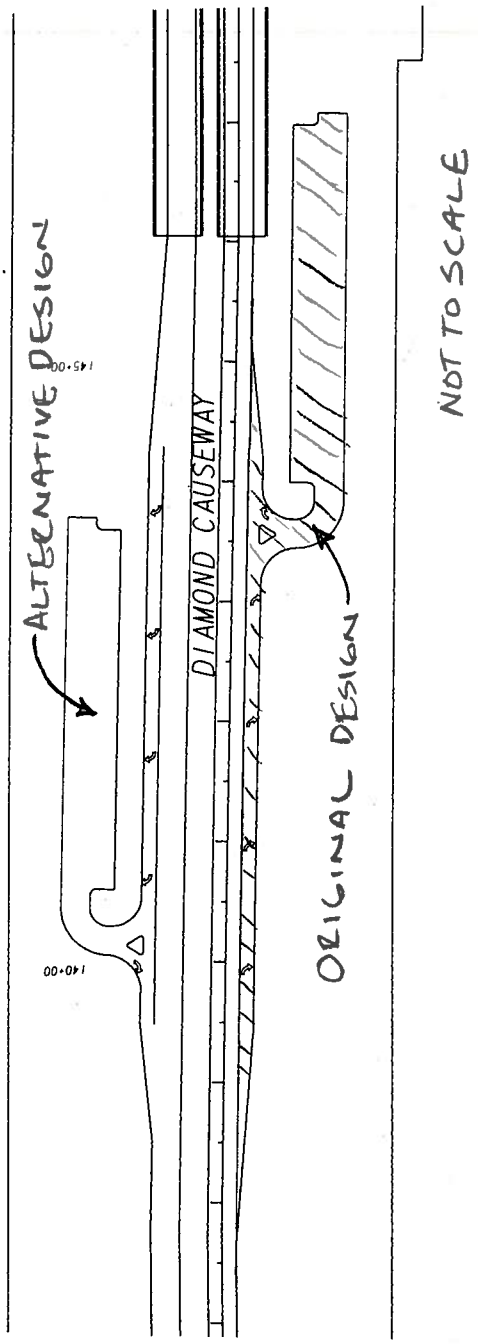
Illustrations

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - PI #550550
Widening of SR 204 Spur/Diamond Causeway,

ALTERNATIVE NO.:
DCRW-2

DESCRIPTION: **MOVE THE "WESTEND" PIER PARKING TO THE NORTH SIDE OF THE ROADWAY AND ELIMINATE THE CROSSOVER AT STATION ~ 166+00**

SHEET NO.: 2 of 3



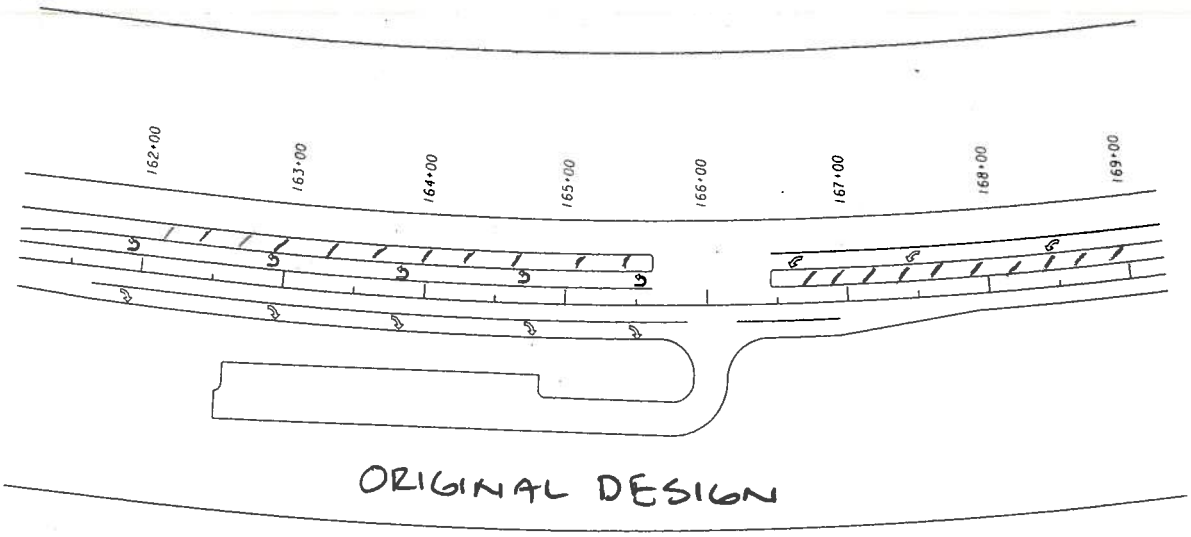
Illustrations

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - PI #550550
Widening of SR 204 Spur/Diamond Causeway,

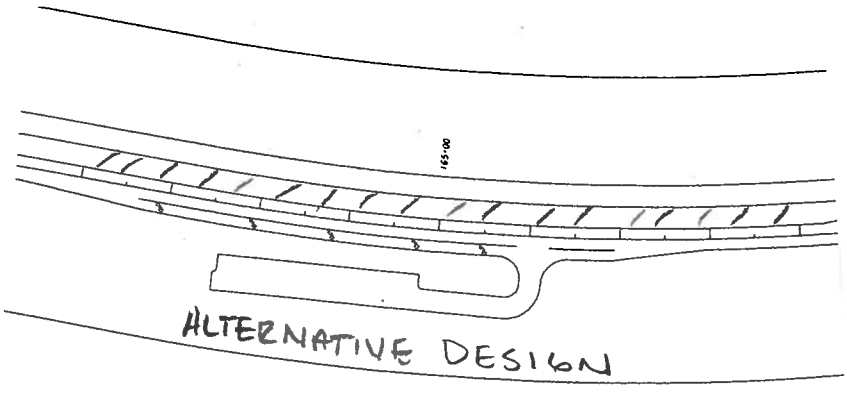
ALTERNATIVE NO.:
DCRW-2

DESCRIPTION: **MOVE THE "WESTEND" PIER PARKING TO THE NORTH SIDE OF THE ROADWAY AND ELIMINATE THE CROSSOVER AT STATION ~ 166+00**

SHEET NO.: 3 of 3



ORIGINAL DESIGN



ALTERNATIVE DESIGN

NOT TO SCALE

Value Analysis Design Suggestion

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - PI #550550
Widening of SR 204 Spur/Diamond Causeway

ALTERNATIVE NO.: **DCRW-3**

DESCRIPTION: **SHIFT SR 204 TRANSITION AT SKIDAWAY STATE PARK ROAD TO THE WEST**

SHEET NO.: 1 of 1

Original Design:

The Original Design proposes a median transition between Station 253+50 and Station 258+50.

Alternative:

The Alternative would propose relocating the median transition from Station 242+50 to 247+50.

Opportunities:

- Eliminate "awkward" geometry at the State Park Road intersection.

Risks:

- Minimal design impact.

Technical Discussion:

The original median transition section overlaps the transition for right and left turn lanes creating a decision point that may be more confusing to the traveling public. By locating the transition to the west of the Park Road intersection, as opposed to in-between the Park Road and Lake Street, simplifies the geometry of the intersection.

Value Analysis Design Suggestion

PBS&J

PROJECT: **Georgia Department of Transportation – STP-OOMS(4) - P.I. 550550 Widening of SR 204 SPUR/Diamond Causeway-Chatham County**

ALTERNATIVE NO.: **DCRW-4**

DESCRIPTION: **CONSIDER USE OF "EYEBROW PAVEMENT" AT POTENTIAL U-TURN/TURNOUT LOCATIONS THROUGHOUT THE PROJECT.**

SHEET NO.: 1 of 1

Original Design:

The original design does not appear to place any "eyebrow pavement" sections in potential turn-out/u-turn locations on the project.

Alternative:

Identify and determine if eyebrow pavement sections may be desirable in turn-out/u-turn areas.

Opportunities:

- Improve safety and operations by enhancing u-turn movements.
- Reduce maintenance costs by protecting the shoulder and pavement from trucks driving off of the pavement edge.

Risks:

- Minimal design impact.
- Additional pavement costs.

Technical Discussion:

Due to the large volume of boats and RV's using this area, enhancements in turn-out/u-turn areas may provide for more efficient traffic operations, as well as to protect the existing shoulders and reducing maintenance. Potential areas to be considered:

-Entrance to Pin Point Community.

-Entrance to Skidaway Narrows marina parking area.

-North side shoulder across from "jug handle" at STA. 248+00-250+00

Value Analysis Design Suggestion

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - PI #550550
Widening of SR 204 SPUR/Diamond Causeway

ALTERNATIVE NO.: **DCRW-5**

DESCRIPTION: **CLOSE THE MEDIAN OPENING AT STATION ~ 166+00**

SHEET NO.: 1 of 2

Original Design:

The original design proposes median openings at ~ Station 166+00 and ~ Station 173+75.

Alternative:

The alternative would propose eliminating the median opening at Station 166+00.

Opportunities:

- Eliminate a median crossover.

Risks:

- Minimal design impact.
- Greater travel distance for Skidaway Island residents accessing the fishing pier on the east side of the Moon River.

Technical Discussion:

By removing the crossover at Station 166+00 it will eliminate the left turn conflict at the cross-over. The proposed crossover is located within 800' of another crossover just to the east.

Illustrations

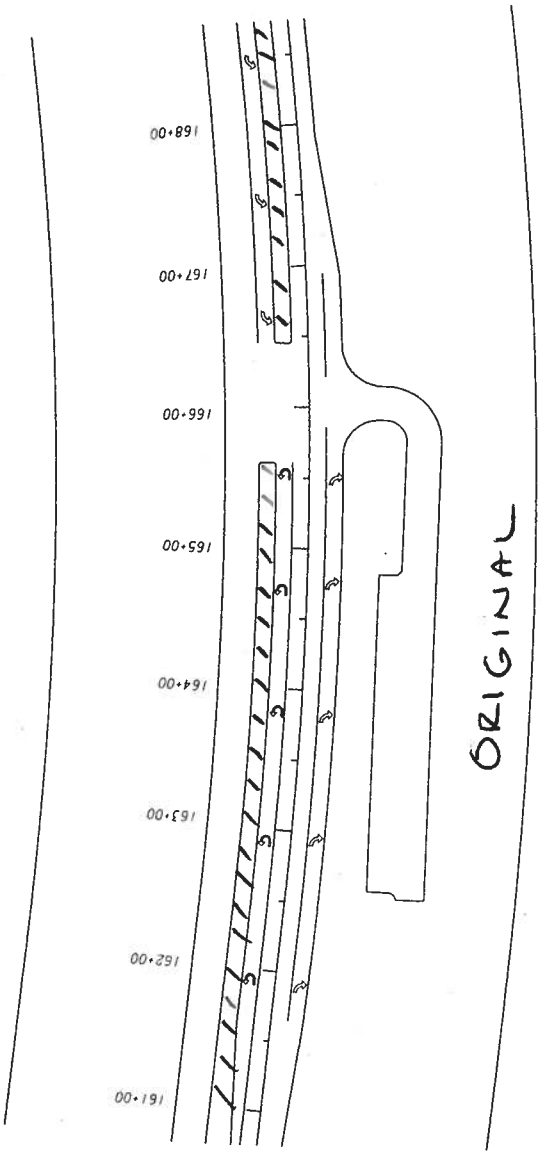
PROJECT: **Georgia Department of Transportation**

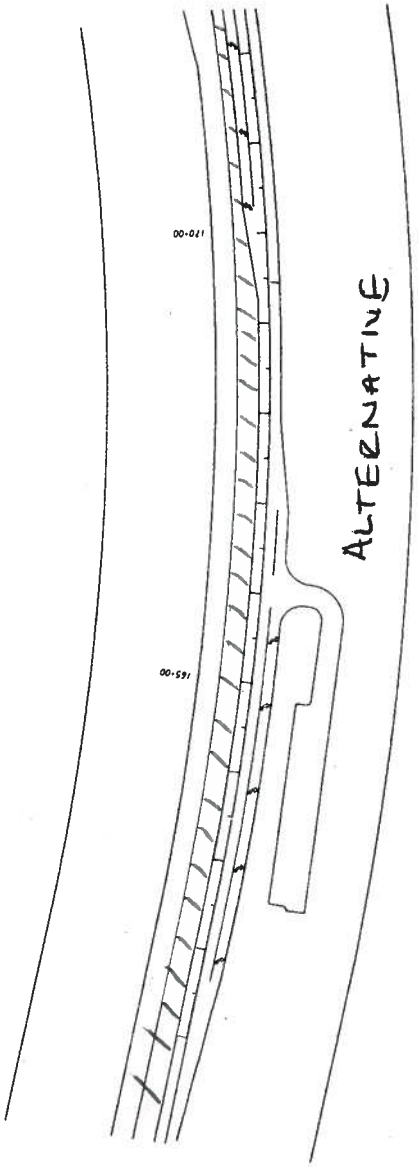
STP-00MS(4) - PI #550550
Widening of SR 204 Spur/Diamond Causeway,

ALTERNATIVE NO.: **DCRW-5**

DESCRIPTION: **CLOSE THE MEDIAN OPENING AT STATION ~ 166+00**

SHEET NO.: 2 of 2





NOT TO SCALE

Value Analysis Design Suggestion

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - PI #550550
Widening of SR 204 SPUR/Diamond Causeway

ALTERNATIVE NO.:

DCRW-6

DESCRIPTION: **EXTEND MOON RIVER EASTERLY ACCESS PARKING TO THE WEST**

SHEET NO.: 1 of 1

Original Design:

The original design proposes to construct a new vehicle parking lot on the southerly side of the new highway and on the easterly side of Moon River.

Alternative:

This alternative would suggest that the proposed Moon River easterly access parking be constructed with a paved sidewalk to the existing fishing pier.

Opportunities:

- Provide easy and handicap access to fishing pier.

Risks:

- Minimal design impact.
- Minor increase in first cost.

Technical Discussion:

It appears reasonable to construct a paved access from the new parking lot to the existing fishing pier.

Value Analysis Design Alternative

PROJECT:	**Georgia Department of Transportation – STP-00MS(4) - PI #550550 Widening of SR 204 SPUR/Diamond Causeway**	ALTERNATIVE NO.:	**DCRW-7**
DESCRIPTION:	**UTILIZE A 10' MEDIAN WITH A POSITIVE BARRIER FROM STATION 180+00 TO STATION 242+00**	SHEET NO.:	1 of 4

Original Design:

The Original Design proposes a 24' raised median.

Alternative: The Alternative proposes utilizing a 10 median consisting of two 4' shoulders and a double sided guardrail.

Opportunities:

- Reduce construction cost
- Improve safety by providing a wider shoulder (4' versus 2') and a positive barrier on a high speed arterial
- Reduced wetland impacts

Risks:

- Minimal design effort

Technical Discussion:

While the cost savings are minimal the wider shoulders, positive barrier, reduced wetland impacts and compatibility with other cost saving proposals provide positive improvements to the project.

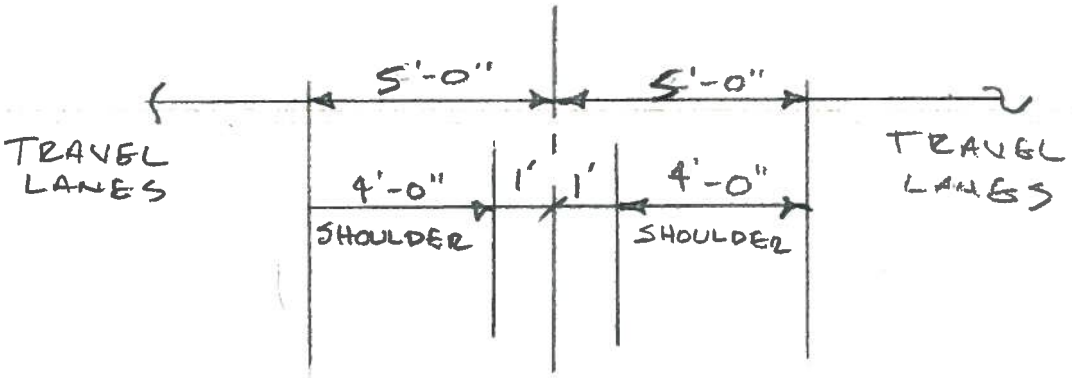
COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 637,599	$	$ 637,599
ALTERNATIVE	$ 614,386	$	$ 614,386
SAVINGS	$ 23,212	$	$ 23,212

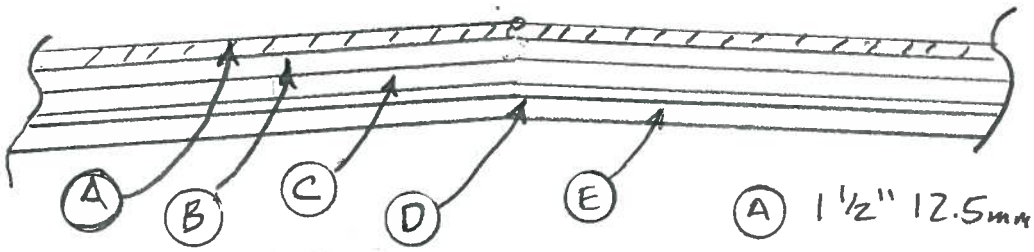
Illustrations

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - PI #55055
Widening of SR 204 Spur/Diamond Causeway

ALTERNATIVE NO.: **DCRW-7**

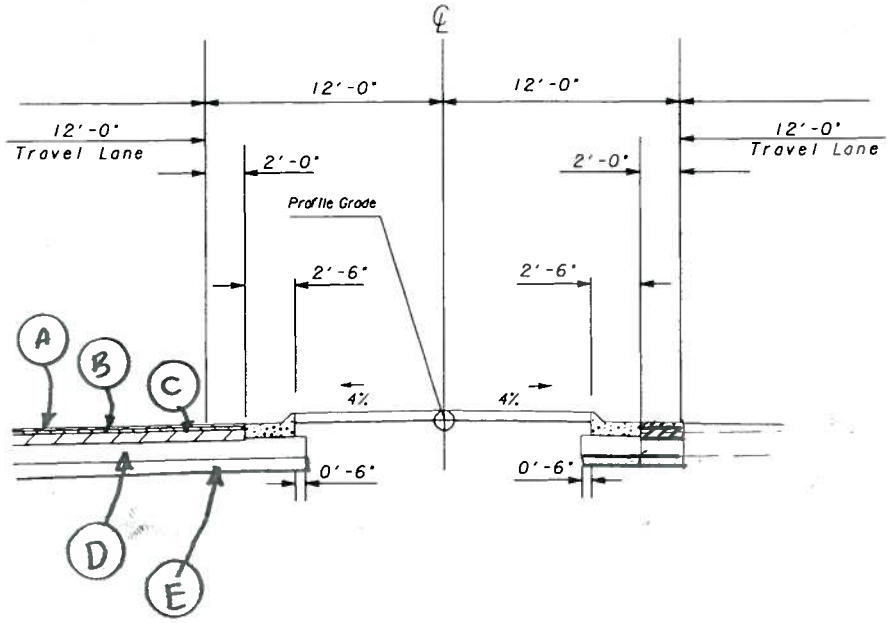
DESCRIPTION: **UTILIZE A 10' MEDIAN WITH A POSITIVE BARRIER FROM STATION 180+00 TO STATION 242+00**





ALTERNATIVE

(A) 1 ½" 12.5mm Superpave
(B) 2" 19.0 mm Superpave
(C) 4" 25.0 mm Superpave
(D) 10" GAB
(E) 12" CLASS II OR BETTER



ORIGINAL

NOT TO SCALE

Calculations

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - PI #550550
Widening of SR 204 SPUR/Diamond Causeway

ALTERNATIVE NO.:

DCRW-7

DESCRIPTION: **UTILIZE A 10' MEDIAN WITH A POSITIVE BARRIER FROM STATION 180+00 TO STATION 242+00**

SHEET NO.: 3 of 4

Length- 180+00 – 242+00 = 6200 ft total
Bridge = 2050 ft
Retaining wall = 1250 ft
Roadway = 2900 ft

Assume ~ 1 foot average depth on earthwork in the median

Compute Median Quantities Only-

AFFECTED PAY ITEMS:

Original:

Retaining wall 24 ft x 30 ft x 2 ea = 1440 sf
Earthwork: [(2900 lf x 24 ft x 1 ft) / (27cf/cy)] +{1250 ft x 24 ft x[(0ft+30ft)/2]} / (27cf/cy)] => 19245 cy
Curb and Gutter: (2900lf + 1250lf) x 2 each => 8300 lf
TYPE II BACKFILL- (10 ft x 4150 lf x 1 ft) / (27cf/cy) => 1537 cy
10" GAB- (10 ft x 4150 lf x 1 ft) x (135#/cf) / (2000#/ton) => 2801 tons
12.5 mm Superpave- (4 ft x 4150 lf x 1 ft) /(9 sf/sy) x (165#/sy) / (2000#/ton) => 152 tons
19.0 mm Superpave- (4 ft x 4150 lf x 1 ft) /(9 sf/sy) x (220#/sy) / (2000#/ton) => 203 tons
25.0 mm Superpave- (4 ft x 4150 lf x 1 ft) /(9 sf/sy) x (440#/sy) / (2000#/ton) => 406 tons

Alternative:

Retaining wall 10 ft x 30 ft x 2 ea = 600 sf
Earthwork: [(2900 lf x 10 ft x 1 ft) / (27cf/cy)] +{1250 ft x 10 ft x[(0ft+30ft)/2]} / (27cf/cy)] => 8019 cy
Double Sided Guardrail: (2900lf + 1250lf) x 1 each => 4150 lf
TYPE II BACKFILL- (10 ft x 4150 lf x 1 ft) / (27cf/cy) => 1537 cy
10" GAB- (10 ft x 4150 lf x 1 ft) x (135#/cf) / (2000#/ton) => 2801 tons
12.5 mm Superpave- (10 ft x 4150 lf x 1 ft) /(9 sf/sy) x (165#/sy) / (2000#/ton) => 381 tons
19.0 mm Superpave- (10 ft x 4150 lf x 1 ft) /(9 sf/sy) x (220#/sy) / (2000#/ton) => 507 tons
25.0 mm Superpave- (10 ft x 4150 lf x 1 ft) /(9 sf/sy) x (440#/sy) / (2000#/ton) => 1014 tons

COST WORKSHEET

PBS&J

PROJECT: **Georgia Department of Transportation**
STP-00MS(4)-PI #550550
Widening of SR 204 PRUR/Diamond Causeway

ALTERNATIVE NO.: **DCRW-7**

DESCRIPTION: UTILIZE A 10' MEDIAN WITH A POSITIVE BARRIER FROM STATION 180+00 TO STATION 242+00

SHEET NO.: 4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
RETAININING WALL	SF	1440	$ 60.00	$ 86,400.00	$ 600.00	$ 60.00	$ 36,000.00
BORROW	CY	19245	$ 7.00	$ 134,715.00	$ 8,019.00	$ 7.00	$ 56,133.00
CURB & GUTTER	LF	8300	$ 18.00	$ 149,400.00	$ -	$ 18.00	$ -
DOUBLE FACED GUARDRAIL	LF	0	$ 40.00	$ -	$ 4,150.00	$ 40.00	$ 166,000.00
G.A.B.	TN	2801	$ 20.00	$ 56,020.00	$ 2,801.00	$ 20.00	$ 56,020.00
TYPE II BACKFILL	CY	1537	$ 60.00	$ 92,220.00	$ 1,537.00	$ 60.00	$ 92,220.00
12.5 mm SUPERPAVE	TN	152	$ 80.00	$ 12,160.00	$ 381.00	$ 80.00	$ 30,480.00
19.0 mm SUPERPAVE	TN	203	$ 80.00	$ 16,240.00	$ 507.00	$ 80.00	$ 40,560.00
25.0 mm SUPERPAVE	TN	406	$ 80.00	$ 32,480.00	$ 1,014.00	$ 80.00	$ 81,120.00
	Sub-total			$579,635			$558,533
Mark-up at	**10.00%**			$57,964			$55,853
	TOTAL			**$637,599**			**$614,386**

Value Analysis Design Alternative

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) – P.I.# 550550
Widening of SR204 SPUR/Diamond Causeway – Chatham County

ALTERNATIVE NO.: **MRB-1**

DESCRIPTION: **MODIFY EXISTING DECK IN-LIEU OF WIDENING**

Original Design: (At the time of the VE study the project was in the conceptual phase and no bridge plans or elevations were available. The discussion below is based on information provided by the designers and certain assumptions).

The original design calls for the widening of the existing bridge across Moon River by 10' to its North to provide a 41.25' wide bridge to accommodate 2-12' travel lanes, 4' inside shoulder, 10' outside shoulder and standard bridge rails. The existing bridge has a sufficiency rating of 63.

The widened bridge would serve as the Eastbound Lanes while a new 41.25' twin bridge to the North of it would serve as the Westbound Lanes under the Diamond Causeway Widening project.

Alternative: The alternative recommends making modifications to the existing deck in-lieu of widening the bridge to serve as the Eastbound Lanes. Other geometry and components of the project would remain the same as in the original design (including constructing a twin bridge to the North to serve as the Westbound Lanes).

Opportunities:

- Potential savings in construction cost and construction time
- Reduce environmental disturbance in the wetland and, hence, mitigation costs
- Minimal waste of time and money on a structure which is in a deteriorating condition that may need replacement in the near future

Risks:

- Minimal change to the concept and design effort
- Design exceptions may be required for reduced travel lane width and shoulder width.

Technical Discussion:

The existing bridge rails and the 3'-4" (approx.) raised portion that appears to overhang the deck by 1'-6" (approx.) may be removed leaving a flat 31'-8" wide deck surface. The 31'-8" can accommodate standard bridge rails, 2' buffer on the inside, 2-11' travel lanes and a 5' (approximate) shoulder.

Note: Based on available inspection reports, it was observed that the bridge has deteriorated (including pop outs and exposed steel on 75% of the beams) and the sufficiency rating has dropped over the years to 63. Due to the harsh conditions at the location of the bridge, substantial drop in its sufficiency rating may be expected at the next inspection which may require that the bridge be replaced.

A more detailed cost analysis may be performed when the bridge design progresses sufficiently to be able to itemize major components. A detailed analysis may show greater cost savings than that shown below.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 642,817	$	$ 642,817
ALTERNATIVE	$ 0	$	$ 0
SAVINGS	$ 642,817	$	$ 642,817

Illustrations

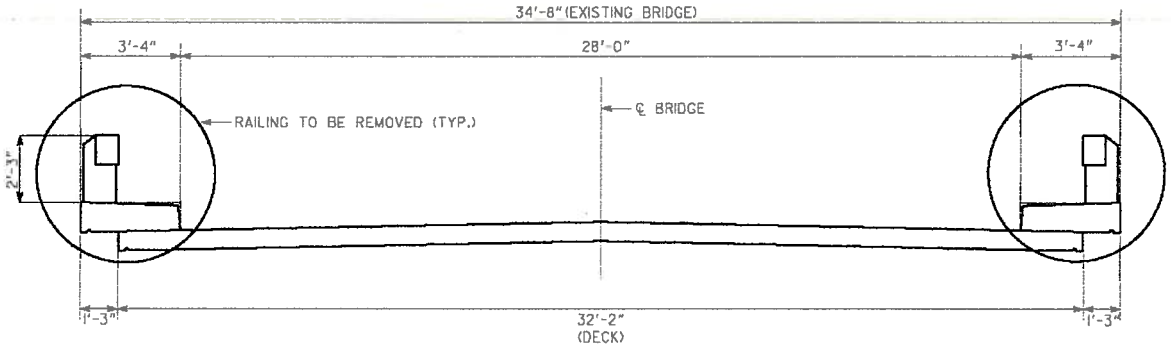
PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - P.I.# 550550
Widening of SR 204 SPUR/Diamond Causeway – Chatham County

ALTERNATIVE NO.:

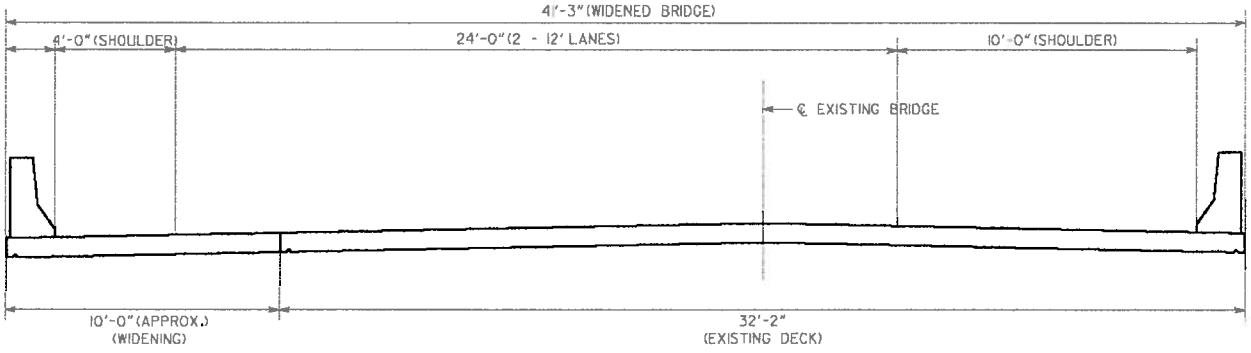
MRB-1

DESCRIPTION: **MODIFY EXISTING DECK IN-LIEU OF WIDENING**

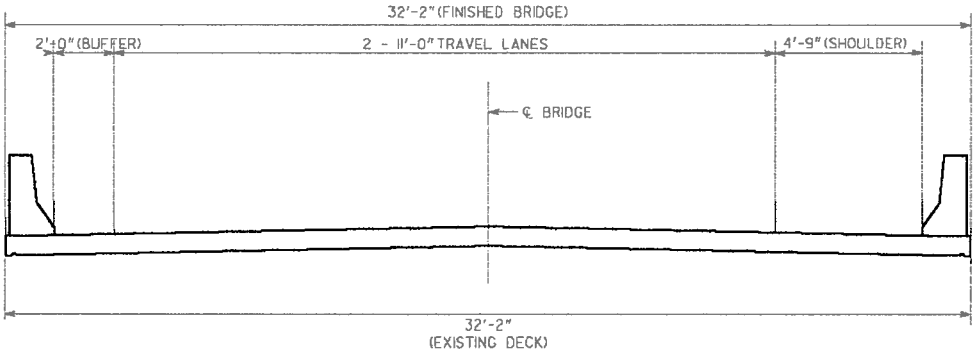
SHEET NO.: 2 of 4



EXISTING BRIDGE SECTION



ORIGINAL DESIGN



ALTERNATIVE DESIGN (MRB-1)

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - P.I.# 550550
Widening of SR 204 SPUR/Diamond Causeway – Chatham County

ALTERNATIVE NO.: **MRB-1**

DESCRIPTION: **MODIFY EXISTING DECK IN-LIEU OF WIDENING**

Note:

1) The VE team is cognizant of the fact that the project design is in its concept phase.
2) Calculations below are based on the Bridge Cross sections provided at the time of the VE study.
3) Costs savings are based on reduction of structure width from the current design.
4) Since the substructure design had not been completed at the time of the VE study and existing conditions were not available, certain assumptions have been made.

Current Design:

10' deck widening over 1,313' of bridge length, removal and replacement of bridge rail.

Alternative MRB-1:

This alternative proposes making modifications to the existing deck in-lieu of widening the bridge to serve as the Eastbound Lanes. The only new construction is the addition of standard bridge rails.

Deck removal (raised 3'-4" portion is assumed to be the same for original and alternative).
Reduction in width of Class AA Deck Concrete = 10'
Volume of reduced Class AA Concrete= [10' X (6.5"/12)' X 1313'] / 27 = 263.41 CY
Area of Deck Grooving = [8' X 1313'] / 9 = 1167.11 SY

Length of PSC Type II Beams (assuming 1 required to support the 10' widening) = 1313 LF
Length of Cap extension (for 22 Caps) = 10'
Volume of Class A concrete (assuming 3'X3' cap) = [10' X 3' X 3' X 22] / 27 = 73.33 CY
Length of 16" SQ. Concrete PSC Piles (assume one per bent and 60' long) = 22 X 60' = 1320 LF

NOTE:

Reduction from current design = savings for alternative.

COST WORKSHEET

PROJECT:	**Georgia Department of Transportation STP-00MS(4) – P.I.# 550550 Widening of SR 204 SPUR/Diamond Causeway – Chatham County**	ALTERNATIVE NO.:	**MRB-1**
DESCRIPTION:	**MODIFY EXISTING DECK IN-LIEU OF WIDENING**	SHEET NO.:	4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Class "AA" Concrete (Sup)	CY	263.41	$ 1,122.40	$295,651.38	0	$ 1,122.40	$0.00
Concrete Grooving	SY	1167.11	$ 4.17	$4,866.85	0	$ 4.17	$0.00
Class "A" Concrete (Sub)	CY	73.33	$ 574.82	$42,151.55	0	$ 574.82	$0.00
Type II PSC Beam	LF	1313	$ 135.24	$177,570.12	0	$ 135.24	$0.00
16" SQ. PSC Piles	LF	1320	$ 48.59	$64,138.80	0	$ 48.59	$0.00
(This is the cost that would be incurred for the current design)							
Sub-total				$ 584,378.70			$0
Mark-up at 10.00%				$ 58,437.87			$0
TOTAL				**$ 642,816.57**			**$0**

Value Analysis Design Suggestion

PROJECT: **Georgia Department of Transportation – STP-OOMS(4) - P.I. 550550 Widening of SR 204 SPUR/Diamond Causeway-Chatham County**

ALTERNATIVE NO.: **MRB-2**

DESCRIPTION: **DESCRIPTION: ROUTE PEDESTRIAN AND BIKE TRAFFIC ONTO NEW BRIDGE IN LIEU OF WIDENING EXISTING BRIDGE.**

Original Design:

The original concept calls for widening to existing Moon River bridge to accommodate a sidewalk/bike lane.

Alternative:

The alternative calls for adding bi-directional pedestrian/bike lanes to the proposed new Moon River bridge. Do not modify the existing bridge. It is suggested to route pedestrian/bike traffic under the existing bridge and to the new bridge, etc.

Opportunities:

- Time savings by isolating construction to one structure.
- Increased life cycle for existing Moon River bridge.

Risks:

- Minimal design impact.
- One lane of bike/pedestrian traffic will be flowing opposite to the flow of vehicular traffic

Technical Discussion:

Placing both directions of bike/pedestrian traffic onto the new structure would allow construction to be isolated to the new structure, fostering traffic operations during construction. The current sufficiency rating for the existing Moon River bridge is 63, an analysis would be prudent to determine the life-cycle cost of expanding/improving a marginal structure versus leaving the structure as-is and not adding additional load.

Costs for widening existing bridge versus constructing bi-directional bike lanes on the proposed bridge will be the same price per square foot. Benefits of the proposed alternative may save in mobilization/demobilization costs, improved traffic operations during the construction phases, as well as potentially increasing the life cycle of the existing bridge by not introducing additional loads.

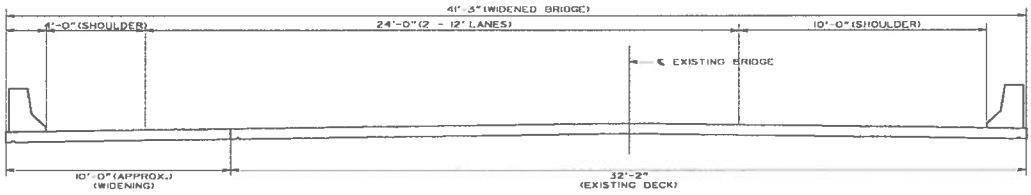
Illustrations

PROJECT: **Georgia Department of Transportation**
STP-OOMS(4) - P.I. 550550
Widening of SR 204 SPUR/Diamond Causeway-Chatham County

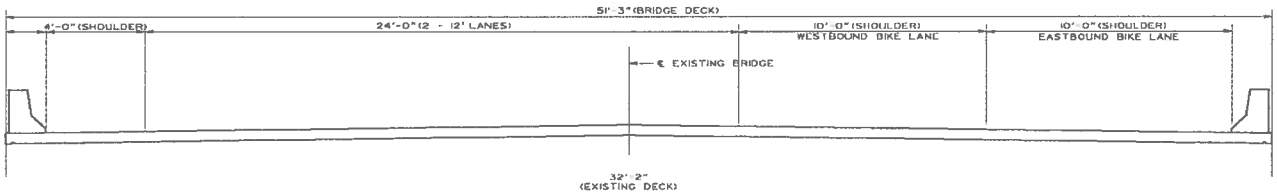
ALTERNATIVE NO.: **MRB-2**

DESCRIPTION: **ROUTE PEDESTRIAN AND BIKE TRAFFIC ONTO NEW BRIDGE IN LIEU OF WIDENING EXISTING BRIDGE**

SHEET NO.: **2** of **2**



ORIGINAL DESIGN



ALTERNATIVE DESIGN (NEW WIDER BRIDGE)

Value Analysis Design Suggestion

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) – P.I.# 550550
SR 204 SPUR/Diamond Causeway, Chatham County

ALTERNATIVE NO.: **MRB-4**

DESCRIPTION: **RE-EVALUATE EXISTING STRUCTURE FOR REPLACEMENT**

Original Design:

(At the time of the VE study the project was in the conceptual phase and no bridge plans or elevations were available. The discussion below is based on information provided by the designers and certain assumptions).

The original design calls for the widening of the existing bridge across Moon River by 10' to its North to provide a 41.25' wide bridge to accommodate 2-12' travel lanes, 4' inside shoulder, 10' outside shoulder and standard bridge rails. The existing bridge has a sufficiency rating of 63.

The widened bridge would serve as the Eastbound Lanes while a new 41.25' twin bridge to the North of it would serve as the Westbound Lanes under the Diamond Causeway Widening project.

Alternative:

The alternative recommends the construction of a new bridge of similar geometry in-lieu of the widening.

Opportunities:

- New bridge with longer life expectancy
- Improved bridge geometry
- Improved aesthetics
- Structure built to current standards

Risks:

- Minimal re-design impact.

Technical Discussion:

Based on available inspection reports, it was observed that the bridge has deteriorated (including pop outs and exposed steel on 75% of the beams) and the sufficiency rating has dropped over the years to 63. Due to the harsh conditions at the location of the bridge, substantial drop in its sufficiency rating may be expected at the next inspection which may require that the bridge be replaced. Therefore, the bridge may be replaced within the scope of the current project in lieu of widening it.

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) – P.I.# 550550
SR 204 SPUR/Diamond Causeway, Chatham County

ALTERNATIVE NO.:

MRB-4

DESCRIPTION: **RE-EVALUATE EXISTING STRUCTURE FOR REPLACEMENT**

SHEET NO.: 2 of 2

GEORGIA DEPARTMENT OF TRANSPORTATION

Bridge Inspection Report

District: 5 **Inspection Date:** 8/29/2006 **Inspection Area:** 05
Bridge Inspector: Gene Palmer **Over:** MOON RIVER **Bridge Status:** 07
Location ID: 051-00204P-004.90E **County:** Chatham
Structure ID: 051-0146-0 **Road Name:** DIAMOND CAUSEWAY

EVALUATION & DEFICIENCIES

SubStructure: **Year Painted:** 0000

22 Concrete caps, abutment foundation is unknown, bents 9,&10 have 4 concrete piles each bent, bents,8& 15 have 6 concrete piles each bent, all others have 3 concrete piles.

Deficiencies noted:
1) Minor cracks in caps at bents ,1,3,4,6, 10, 11,13,15,16,&22,(No repair).
2) Minor cracks in following piles, Bent 4 pile 3, Bent 7 pile 2, Bent 8 pile1, Bent 9 pile 3, Bent 10 piles 2&3, Bent 11 pile 2, Bent 12 piles 2&3, Bent 14 piles 2&3, Bent 15 pile 3, Bent17 pile 2, Bent 18 piles 1,2&3, Bent 19 pile 3, Bent 20 piles 1,2,&3, (No repair).

SuperStructure: **Year Painted:** 0000

21 Spans with 5 PCS beams per span, Type unknown, 48"D X 18"W.

Deficiencies noted:
1) 75% of PSC beams have pop outs with exposed steel on the ends of the beams, (See photo) Epoxy based Green paint has been applied to ends making it appear that the ends are sealed now.
2) Beam 3 at bent 4, beams 3&5 at bent 5, beams 2&3 at bent 8 all have minor bar showing due to poor cover.

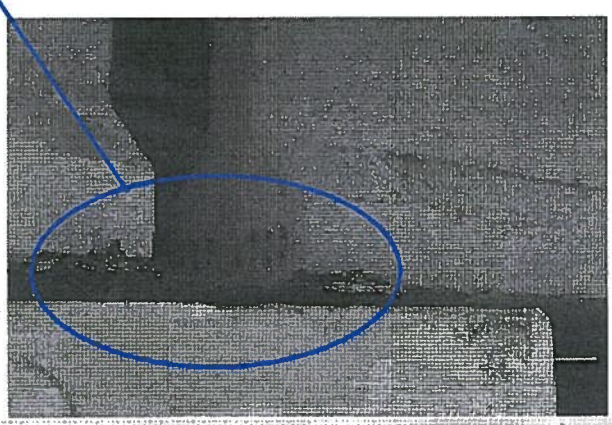
Deck:

6.5" Concrete deck.

Deficiencies noted:
1) Minor cracks in deck, (No repair).
2)Both abutment joints open, plus bent 21 open.
3) Clean end of curb right before it goes into spillway.

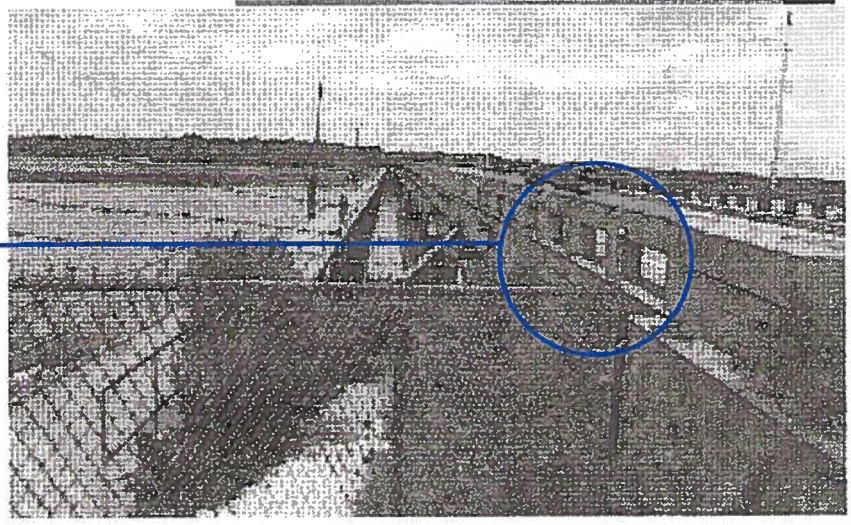
General:

Built in 1970.
2 Approach slabs both are overlaid with asphalt.
Design load=HS-20+.
TIDAL ZONE
Fender system is new ,and is made of some type man made material, (Fiberglass, or usec
There is a fishing pier along side of bridge, but not attached to bridge (See photo 5).
Need boat to complete inspection. (Used boat)
Spans 3 thru 19 are under contract for snooper inspection.



Recommended repairs:
1) Seal joints at both abutments, and bent 21.
2) Clean deck, and spill ways.
3) Seal cracks in piles.
4) Seal exposed bar in bottom of beams.

Substandard Bridge Railing



Value Analysis Design Alternative

PBSJ

PROJECT: **Georgia Department of Transportation** **STP-00MS(4) - P.I.# 550550** **Widening of SR 204 SPUR/Diamond Causeway – Chatham County**	ALTERNATIVE NO.: **DCSN-1**
DESCRIPTION: **USE 8' OUTSIDE AND 4' INSIDE SHOULDERS IN-LIEU OF 10' SHOULDERS**	SHEET NO.: 1 of 4

Original Design:

(At the time of the VE study the project was in the conceptual phase and no bridge plans or elevations were available. The discussion below is based on information provided by the designers and certain assumptions).

The original design calls for the construction of a 2050' long bridge over Skidaway Narrows to replace the existing Bascule bridge under this contract which follows the construction of an identical twin bridge under contract CSSTP-0008-00(65). The bridge is 47-3" wide and accommodates 2-12 ft travel lanes, 2-10' bike able shoulders and standard barriers.

Alternative:

The alternative recommends the construction of the bridge in under this contract to accommodate 2-12' lanes an 8' bike able outside shoulder and a 4' inside shoulder in-lieu of 10' shoulders. Other geometry and components of the project would remain the same as in the original design.

Opportunities:

- Potential savings in construction cost and construction time

Risks:

- Minimal change to the concept and design effort

Technical Discussion:

The bridge may be constructed to accommodate 8' bike able outside shoulders, 4' inside shoulders, 2-12' travel lanes and standard barriers for a total width of 39'-3" as opposed to a 47'-3" width in the original design.

Note that Chapter 7 "Rural and Urban Arterials", Section under "Shoulders", page 455 of the AASHTO – Geometric Design of Highways and Streets, allows the use of 8' outside and 4' inside shoulders on "Long Bridges".

In comparing costs of original design and alternative, $100 per square foot has been assumed for the bridge construction. A more detailed cost analysis may be performed when the bridge design progresses sufficiently to be able to itemize major components. A detailed analysis may show greater cost savings than that shown below.

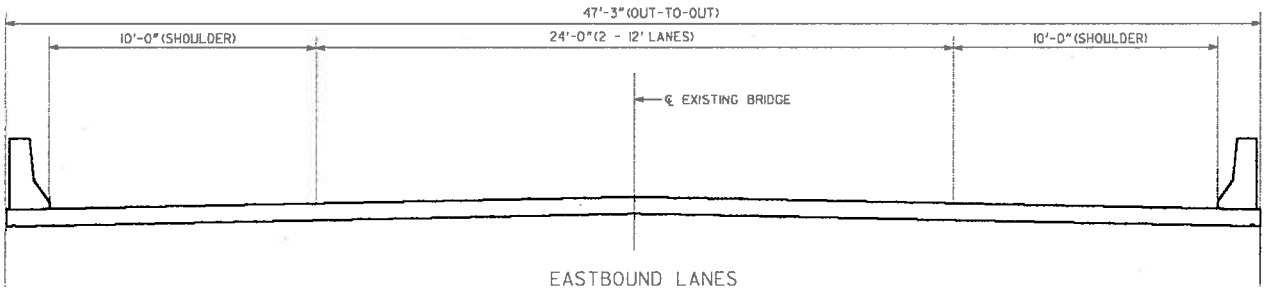
COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 1,804,000	$	$ 1,804,000
ALTERNATIVE	$ 0	$	$ 0
SAVINGS	$ 1,804,000	$	$ 1,804,000

PROJECT: **Georgia Department of Transportation – STP-00MS(4) - P.I.# 550550 Widening of SR 204 SPUR/Diamond Causeway – Chatham County**

ALTERNATIVE NO.: **DCSN-1**

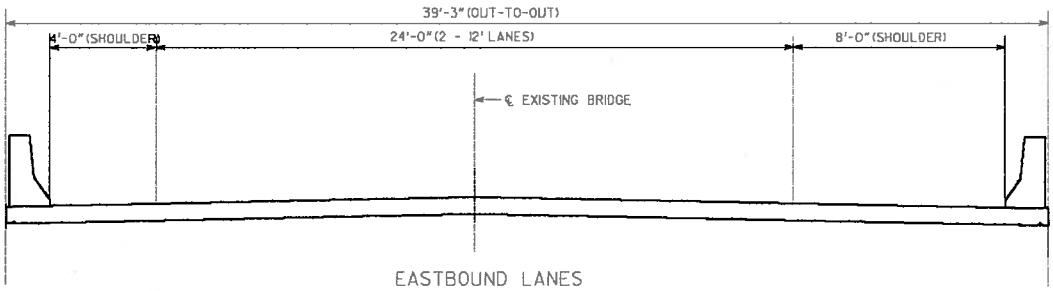
DESCRIPTION: **USE 8' OUTSIDE AND 4' INSIDE SHOULDERS IN-LIEU OF 10' SHOULDERS**

SHEET NO.: 2 of 4



EASTBOUND LANES
BRIDGE TO REPLACE BASCULE BRIDGE UNDER PROJECT STP-00MS(4)

ORIGINAL DESIGN



EASTBOUND LANES
BRIDGE TO REPLACE BASCULE BRIDGE UNDER PROJECT STP-00MS(4)

ALTERNATIVE DESIGN

Calculations

PBS&J

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) - P.I.# 550550
Widening of SR 204 SPUR/Diamond Causeway – Chatham County

ALTERNATIVE NO.: **DCSN-1**

DESCRIPTION: **USE 8' OUTSIDE AND 4' INSIDE SHOULDERS IN-LIEU OF 10' SHOULDERS**

SHEET NO.: 3 of 4

Note:

1) The VE team is cognizant of the fact that the project design is in its concept phase.
2) Calculations below are based on the Bridge Cross sections provided at the time of the VE study.
3) Costs savings are based on reduction of structure width from the current design.
4) Since the substructure design had not been completed at the time of the VE study and existing conditions were not available, certain assumptions have been made.

Current Design:

47'-3" wide bridge under this contract.

Alternative DCSN-1:

This alternative proposes building a single structure 39'-3" wide.

Reduction in width of Deck = [47.25' – 39.25'] = 8'
Area of reduced bridge surface = [8' X 2050'] = 16,400 SF

{In comparing costs of original design and alternative, $100 per square foot has been assumed for the bridge construction. A more detailed cost analysis may be performed when the bridge design progresses sufficiently to be able to itemize major components. A detailed analysis may show greater cost savings than that shown below.}

NOTE:

Reduction from current design = savings for alternative.

Cost of Bridge Construction assumed to be $100 per SF.

COST WORKSHEET

PBS&J

PROJECT:	Georgia Department of Transportation STP-00MS(4) – P.I.# 550550 Widening of SR 204 SPUR/Diamond Causeway – Chatham	ALTERNATIVE NO.:	**DCSN-1**
DESCRIPTION:	**USE 8' OUTSIDE AND 4' INSIDE SHOULDERS IN-LIEU OF 10' SHOULDERS**	SHEET NO.:	4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Bridge	SF	16400	$ 100.00	$1,640,000.00	0	$ 100.00	$0.00
(This is the cost that would be incurred for the current design)							
Sub-total				$1,640,000			$0
Mark-up at 10.00%				$164,000			$0
TOTAL				**$1,804,000**			**$0**

Value Analysis Design Suggestion

PROJECT: **Georgia Department of Transportation**
STP-00MS(4) – P.I.# 550550
Widening of SR204 SPUR/Diamond Causeway – Chatham County

ALTERNATIVE NO.: **DCSN-3**

DESCRIPTION: **USE LONGER SPANS TO REDUCE MITIGATION**

SHEET NO.: **1** of **1**

Original Design:

(At the time of the VE study the project was in the conceptual phase and no bridge plans or elevations were available. The discussion below is based on information provided by the designers and certain assumptions).

The original design calls for the construction of a 1313' long bridge over Moon (Back) River as an identical twin bridge to the North of the existing bridge. **It is assumed that the new bridge to carry the Westbound Lanes will be identical in span arrangement to the existing bridge.** The bridge will be 41.25' wide and accommodate 2-12 ft travel lanes, 1-10' bike able shoulder and 1-4' inside shoulder and standard barriers.

Alternative:

The alternative recommends the construction of the bridge of similar geometry but with longer approach span arrangements (possibly 80' or 100' – hydraulics and flood elevations permitting).

Opportunities:

- Reduce number of intermediate bents
- Reduce environmental disturbance in the wetland and, hence, mitigation costs
- Potential savings in construction cost and construction time

Risks:

- Minimal re-design impact.

Technical Discussion:

Longer spans of 80' to 100' can be constructed by using Type III (80') or BT 54 (100') Girders.

The bridge carries traffic over Moon (Back) River and the adjacent flood plain / wetlands. The area is under the influence of backwaters from the Savannah River and the Atlantic Ocean and, hence, a designated wetland.

Utilizing fewer bents for the construction of the bridge will reduce environmental impacts and mitigation costs.

Project Description

PROJECT DESCRIPTION

Project CSSTP-0008-00(651) consists of constructing a new two-lane high level bridge replacement for the existing Bascule Bridge over Skidaway Narrows in Chatham County, Georgia. The bridge replacement has been requested by Chatham County as an immediate need and will be constructed prior to Project STP-00MS(4).

Project STP-00MS(4) will then widen SR 204 /SPUR to four-lanes and provide a companion parallel bridge over Skidaway Narrows, as well as new bridges across the Moon River. The length of this project is 3.22 miles along SR 204 SPUR/Diamond Causeway from Ferguson Avenue to McWhorter Drive. Estimated construction time is 24 months.

The projected construction cost for CSSTP-0008-00(651) is $13,462,464 plus a 10% E & C rate of $1,346,246; for a total project budget of $14,808,710

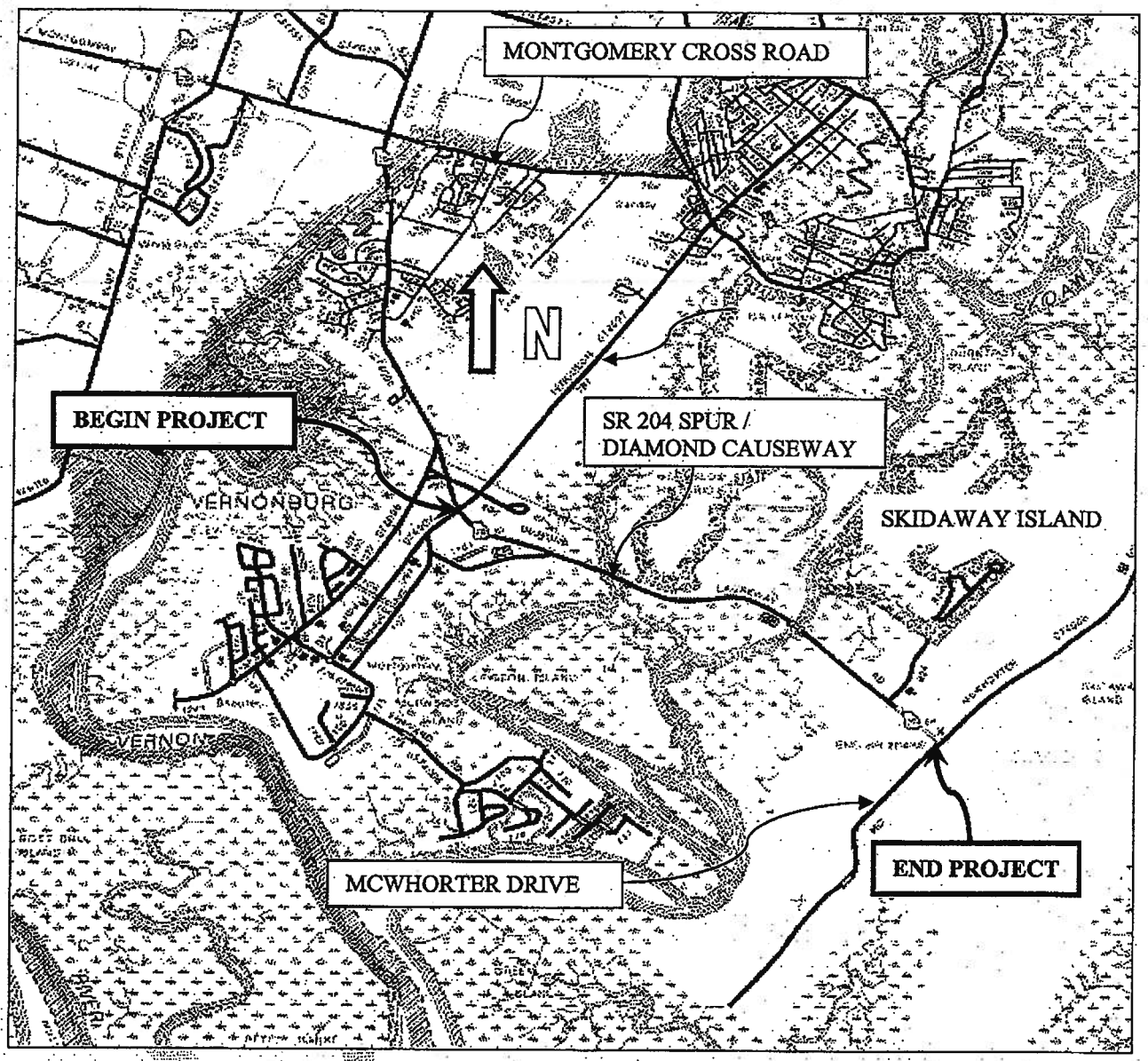
The projected construction cost for STP-00MS(4) is $28,578,374 plus a 10% E & C rate of $2,857,837; for a total project budget of $31,436,211.

REPRESENTATIVE DOCUMENTS

- Georgia Department of Transportation
  - The Concept Report and Plans
  - Construction Cost Estimates

The VE Team utilized the supplied project materials noted above and the current GDOT standard drawings, details and specifications.

Representative documents follow:



LOCATION MAP

PROJECT STP-00MS(4), Chatham County
SR 204 Spur/Diamond Causeway from
Ferguson Avenue to McWhorter Drive
P. I. 550550-, 0008651

Estimate Report for file "550550_070706"

Section Erosion Control - Temporary

Item Number	Quantity	Units	Unit Price	Item Description	Cost
163-0232	18	AC	700.00	TEMPORARY GRASSING	12600.00
163-0240	950	TN	300.00	MULCH	285000.00
163-0300	8	EA	1600.00	CONSTRUCTION EXIT	12800.00
163-0520	3500	LF	17.00	CONSTRUCT AND REMOVE TEMPORARY PIPE SLOPE DRAIN	59500.00
163-0530	5000	LF	5.00	CONSTRUCT AND REMOVE BALED STRAW EROSION CHECK	25000.00
163-0550	45	EA	330.00	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP	14850.00
165-0010	40000	LF	1.00	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	40000.00
165-0030	7500	LF	2.00	MAINTENANCE OF TEMPORARY SILT FENCE, TP C	15000.00
165-0070	2500	LF	2.10	MAINTENANCE OF BALED STRAW EROSION CHECK	5250.00
165-0101	8	EA	650.00	MAINTENANCE OF CONSTRUCTION EXIT	5200.00
165-0105	48	EA	120.00	MAINTENANCE OF INLET SEDIMENT TRAP	5760.00
167-1000	2	EA	1500.00	WATER QUALITY MONITORING AND SAMPLING	3000.00
167-1500	48	MO	1000.00	WATER QUALITY INSPECTIONS	48000.00
171-0010	80000	LF	2.50	TEMPORARY SILT FENCE, TYPE A	200000.00
171-0030	25000	LF	4.20	TEMPORARY SILT FENCE, TYPE C	105000.00
				Section Sub Total:	**$836,960.00**

Section Signing and Marking

Item Number	Quantity	Units	Unit Price	Item Description	Cost
632-0003	3	EA	17000.00	CHANGEABLE MESSAGE SIGN, PORTABLE, TYPE 3	51000.00
636-1020	3000	SF	16.00	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 3	48000.00
636-1031	3000	SF	24.00	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING TP 6	72000.00
636-2080	3500	LF	12.00	GALV STEEL POSTS, TP 8	42000.00
636-2090	3500	LF	10.00	GALV STEEL POSTS, TP 9	35000.00
652-0094	48	EA	50.00	PAVEMENT MARKING, SYMBOL, TP 4	2400.00
653-0110	22	EA	80.00	THERMOPLASTIC PVMT MARKING, ARROW, TP 1	1760.00
653-0120	200	EA	80.00	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	16000.00
653-0150	22	EA	80.00	THERMOPLASTIC PVMT MARKING, ARROW, TP 5	1760.00
653-0160	72	EA	80.00	THERMOPLASTIC PVMT MARKING, ARROW, TP 6	5760.00
653-0170	72	EA	80.00	THERMOPLASTIC PVMT MARKING, ARROW, TP 7	5760.00
653-0210	216	EA	115.00	THERMOPLASTIC PVMT MARKING, WORD, TP 1	24840.00
653-0220	64	EA	115.00	THERMOPLASTIC PVMT MARKING, WORD, TP 2	7360.00
653-0230	8	EA	115.00	THERMOPLASTIC PVMT MARKING, WORD, TP 3A	920.00
653-0296	24	EA	220.00	THERMOPLASTIC PVMT MARKING, WORD, TP 15	5280.00
653-1501	100000	LF	0.60	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	60000.00
653-1502	50000	LF	0.60	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	30000.00
653-1704	2400	LF	4.00	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	9600.00
653-1804	4200	LF	2.00	THERMOPLASTIC SOLID TRAF STRIPE, 8 IN, WHITE	8400.00
653-3501	60000	GLF	0.50	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	30000.00
653-6004	1000	SY	3.00	THERMOPLASTIC TRAF STRIPING, WHITE	3000.00
653-6006	250	SY	3.00	THERMOPLASTIC TRAF STRIPING, YELLOW	750.00
654-1003	3000	EA	5.00	RAISED PVMT MARKERS TP 3	15000.00
				Section Sub Total:	**$476,590.00**

Section Concrete Bridge Culvert Items					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
207-0203	90	CY	60.00	FOUND BKFILL MATL, TP II	5400.00
500-3101	500	CY	800.00	CLASS A CONCRETE	400000.00
511-1000	80000	LB	1.00	BAR REINF STEEL	80000.00
603-2024	80	SY	53.00	STN DUMPED RIP RAP, TP 1, 24 IN	4240.00
603-7000	80	SY	5.00	PLASTIC FILTER FABRIC	400.00
				Section Sub Total:	**$490,040.00**

Section BRIDGE - SKIDAWAY NARROWS					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
500-XXXX	56000	LF	115.00	1 NEW BRIDGE 1400 FT BY 40 FT	6440000.00
				Section Sub Total:	**$6,440,000.00**

Section BRIDGE - MOON RIVER					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
500-xxxx	6120	SF	110.00	Widen existing bridge 1020 x 6	673200.00
500-XXXX	40800	SF	95.00	1 NEW BRIDGE 1020 FT BY 40 FT	3876000.00
				Section Sub Total:	**$4,549,200.00**

Section Roadway Items					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	1	LS	2900000.00	TRAFFIC CONTROL -	2900000.00
150-5000	4	EA	550.00	TRAFFIC CONTROL, TEMPORARY SAND LOADED ATTENUATOR MODULE	2200.00
150-5010	2	EA	12000.00	TRAFFIC CONTROL, PORTABLE IMPACT ATTENUATOR	24000.00
153-1300	1	EA	85000.00	FIELD ENGINEERS OFFICE TP 3	85000.00
158-1000	80	HR	0.80	TRAINING HOURS	64.00
201-1500	1	LS	600000.00	CLEARING & GRUBBING -	600000.00
205-0001	50000	CY	6.00	UNCLASS EXCAV	300000.00
206-0002	250000	CY	7.00	BORROW EXCAV, INCL MATL	1750000.00
207-0203	5000	CY	60.00	FOUND BKFILL MATL, TP II	300000.00
310-1101	68510	TN	20.00	GR AGGR BASE CRS, INCL MATL	1370200.00
402-1812	6000	TN	80.00	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	480000.00
402-3121	22780	TN	80.00	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	1822400.00
402-3130	8500	TN	80.00	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	680000.00
402-3190	11390	TN	80.00	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2,INCL BITUM MATL & H LIME	911200.00
413-1000	13000	GL	2.30	BITUM TACK COAT	29900.00
432-5010	1000	SY	5.00	MILL ASPH CONC PVMT, VARIABLE DEPTH	5000.00
441-0016	200	SY	42.00	DRIVEWAY CONCRETE, 6 IN TK	8400.00
441-0018	200	SY	54.00	DRIVEWAY CONCRETE, 8 IN TK	10800.00
441-0303	8	EA	2200.00	CONC SPILLWAY, TP 3	17600.00
441-0740	12000	SY	31.00	CONCRETE MEDIAN, 4 IN	372000.00
441-6720	50000	LF	18.00	CONC CURB & GUTTER, 6 IN X 30 IN, TP 7	900000.00
446-1001	20000	LF	4.00	PVMT REINF FABRIC STRIPS, TP 1, INCL BITUM BINDER	80000.00
456-2015	7	GLM	830.00	INDENTATION RUMBLE STRIPS - GROUND-IN-PLACE (SKIP)	5810.00
550-1180	3000	LF	46.00	STORM DRAIN PIPE, 18 IN, H 1-10	138000.00
550-1300	800	LF	75.00	STORM DRAIN PIPE, 30 IN, H 1-10	60000.00
550-1360	700	LF	90.00	STORM DRAIN PIPE, 36 IN, H 1-10	63000.00
550-1420	500	LF	130.00	STORM DRAIN PIPE, 42 IN, H 1-10	65000.00
550-2180	5000	LF	42.00	SIDE DRAIN PIPE, 18 IN, H 1-10	210000.00
550-3318	30	EA	750.00	SAFETY END SECTION 18 IN, STORM DRAIN, 4:1 SLOPE	22500.00
550-4218	30	EA	680.00	FLARED END SECTION 18 IN, STORM DRAIN	20400.00
550-4230	10	EA	910.00	FLARED END SECTION 30 IN, STORM DRAIN	9100.00
550-4236	15	EA	1300.00	FLARED END SECTION 36 IN, STORM DRAIN	19500.00

550-4242	8	EA	1500.00	FLARED END SECTION 42 IN, STORM DRAIN	12000.00
634-1200	90	EA	100.00	RIGHT OF WAY MARKERS	9000.00
641-1100	500	LF	44.00	GUARDRAIL, TP T	22000.00
641-1200	3000	LF	20.00	GUARDRAIL, TP W	60000.00
641-2100	350	LF	100.00	DBL FACED GUARDRAIL, TP T	35000.00
641-2200	750	LF	40.00	DBL FACED GUARDRAIL, TP W	30000.00
641-5001	50	EA	700.00	GUARDRAIL ANCHORAGE, TP 1	35000.00
641-5012	35	EA	1810.00	GUARDRAIL ANCHORAGE, TP 12	63350.00
660-1100	2	EA	14500.00	RELOCATE PUMP STATION	29000.00
668-1200	12	EA	6000.00	CATCH BASIN, GP 2	72000.00
				Section Sub Total:	**$13,629,424.00**

Section Erosion Control - Permanent

Item Number	Quantity	Units	Unit Price	Item Description	Cost
603-1024	3000	SY	85.00	STN PLAIN RIP RAP, 24 IN	255000.00
603-7000	6000	SY	5.00	PLASTIC FILTER FABRIC	30000.00
700-6910	30	AC	1000.00	PERMANENT GRASSING	30000.00
700-7000	52	TN	80.00	AGRICULTURAL LIME	4160.00
700-7010	210	GL	20.00	LIQUID LIME	4200.00
700-8000	35	TN	400.00	FERTILIZER MIXED GRADE	14000.00
700-8100	4000	LB	3.00	FERTILIZER NITROGEN CONTENT	12000.00
700-9300	2000	SY	6.00	SOD	12000.00
710-9000	10000	SY	5.00	PERMANENT SOIL REINFORCING MAT	50000.00
716-2000	40000	SY	1.40	EROSION CONTROL MATS, SLOPES	56000.00
				Section Sub Total:	**$467,360.00**

Section Signal Items

Item Number	Quantity	Units	Unit Price	Item Description	Cost
647-0220	2	LS	42500.00	TRAFFIC SIGNAL INSTALLATION, TEMPORARY	85000.00
647-1000	2	LS	70000.00	TRAFFIC SIGNAL INSTALLATION NO -	140000.00
647-2130	2	EA	500.00	PULL BOX, PB-3	1000.00
647-2500	2	LS	120000.00	QUEUE DETECTION AND WARNING SYSTEM	240000.00
647-5230	1	EA	4800.00	SIGNAL ASSEMBLY, FLASHING SCHOOL, COMPLETE	4800.00
647-6090	20	EA	700.00	LOOP DETECTOR -	14000.00
				Section Sub Total:	**$484,800.00**

Section Retaining Walls and Alternates

Item Number	Quantity	Units	Unit Price	Item Description	Cost
624-0101	22000	SF	22.00	SOUND BARRIER, TYPE B, 0-10 FT HT	484000.00
627-1010	12000	SF	60.00	MSE WALL FACE, 10 - 20 FT HT, WALL NO -	720000.00
				Section Sub Total:	**$1,204,000.00**

Total Estimated Cost: $28,578,374.00

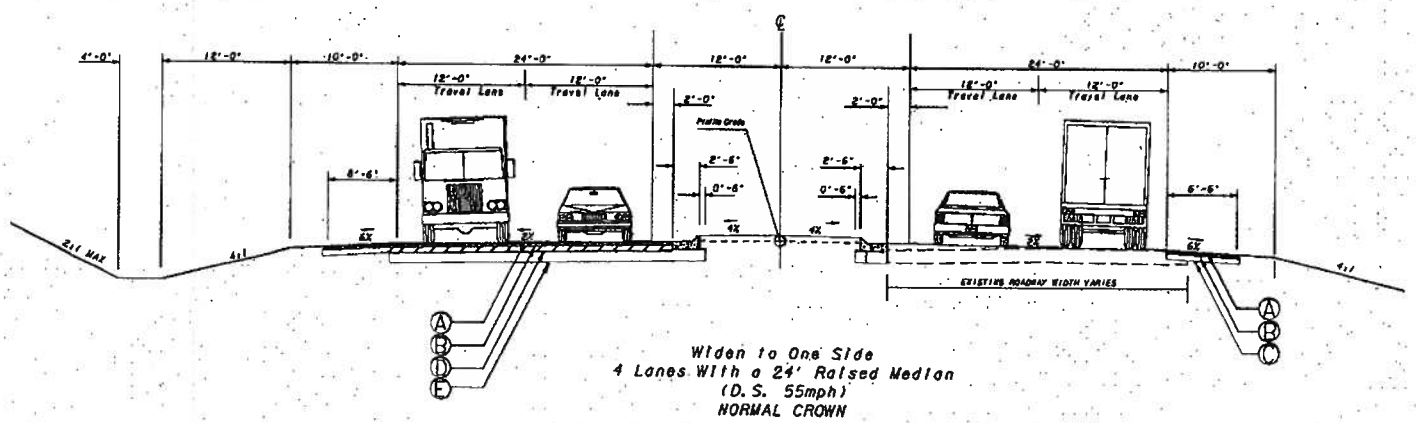
Subtotal Construction Cost	**$28,578,374.00**
E&C Rate 10.0 %	$2,857,837.40
Inflation Rate 0.0 % @ 0.0 Years	$0.00
Total Construction Cost	**$31,436,211.40**
Right Of Way	$0.00
ReImb. Utilities	$0.00
Grand Total Project Cost	**$31,436,211.40**

PROJECT NO.: STP-00MS(4)
P. I. NO.: 550550
COUNTY: CHATHAM

TYPICAL SECTION

SR 204 SPUR/Diamond Causeway from Ferguson Ave. to McWhorter Dr.

4 lane section with 24' raised median



Widen to One Side
4 Lanes With a 24' Raised Median
(D.S. 55mph)
NORMAL CROWN

Ⓐ 1½" 12.5 mm Superpave
Ⓑ 2" 19 mm Superpave
Ⓒ 4" 25 mm Superpave
Ⓓ 10" GAB
Ⓔ 12" CLASS II OR BETTER MATERIAL

Georgia Department of Transportation
Office of Urban Design
Typical Section

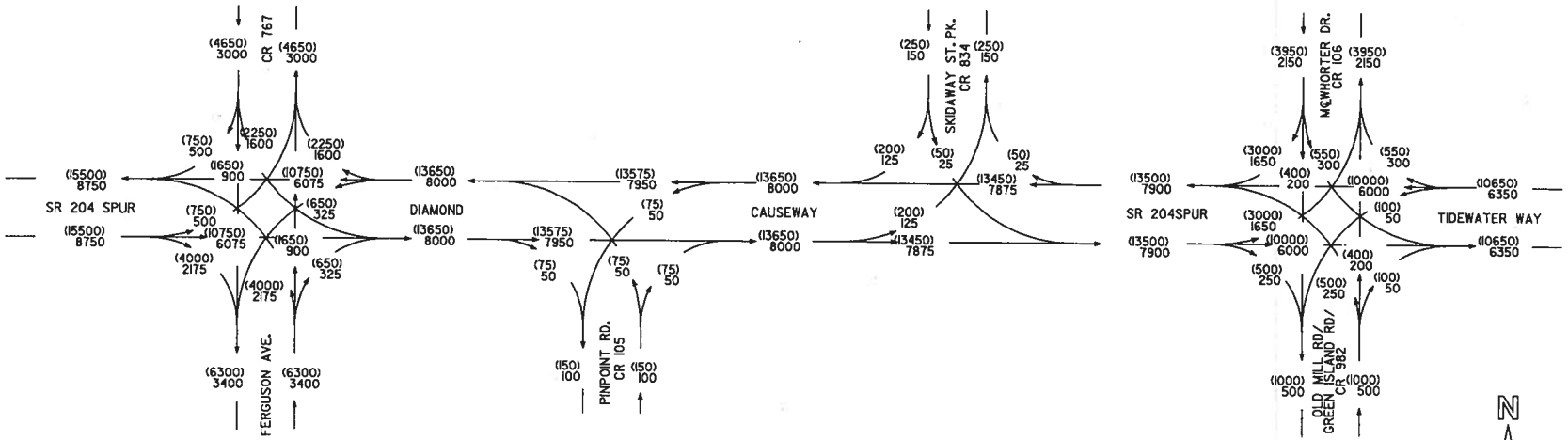
\DGN\Larry\550550typ01.dgn 7/3/2007 8:35:19 AM

CHATHAM COUNTY

GEORGIA DEPARTMENT OF TRANSPORTATION
OFFICE OF ENVIRONMENT/LOCATION

2030 ADT = (000)
2010 ADT = 000

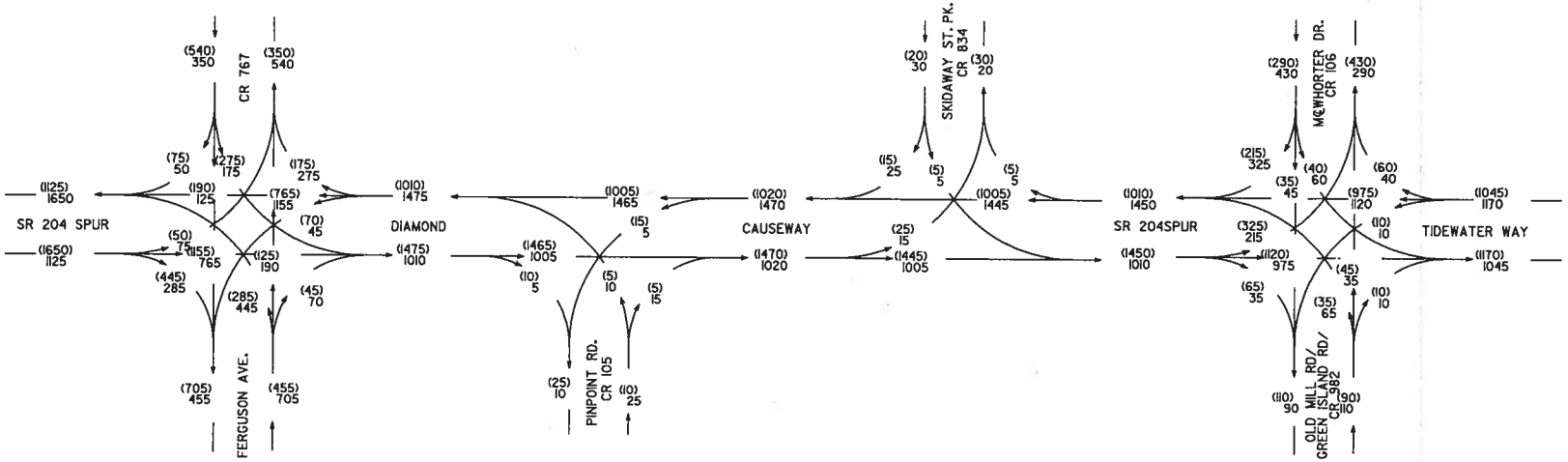
24 HR. T = 5%
S.U. = 4%
COMB. = 1%



N

2030 P.M. DHV = (000)
2030 A.M. DHV = 000

T = 4%



STP-00MS(4)
CHATHAM COUNTY
P.I.# 550550

SR 204 SPUR/DIAMOND
CSWY FM FERGUSON AVE
TO MCWHORTER DR

AMW 07/07

Project Number: STP-00MS(4)
Diamond Causeway From Ferguson Ave to McWhorter Dr
P. I. Number: 550550
County: Chatham

ACCIDENT RATE CALCULATION for year(s) 2003,2004,2005

Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2003	Chatham	1	0204SP	3.88	4	13,900	0.12	1,668
2003	Chatham	1	0204SP	4	6.9	13,100	2.90	37,990
2003	Chatham	1	0204SP	6.9	7.14	13,400	0.24	3,216

Total Vehicle Miles: 42,874	Total Accidents: 18	Accident Rate: 115
Average ADT: 13,152	Total Injuries: 8	Injury Rate: 51
Length in Miles: 3.26	Total Fatalities: 0	Fatality Rate: 0.00

NOTE: Rates are per 100 Million Vehicle Miles

Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2004	Chatham	1	0204SP	3.88	4	14,840	0.12	1,781
2004	Chatham	1	0204SP	4	6.9	13,710	2.90	39,759
2004	Chatham	1	0204SP	6.9	7.14	14,250	0.24	3,420

Total Vehicle Miles: 44,960	Total Accidents: 36	Accident Rate: 219
Average ADT: 13,791	Total Injuries: 18	Injury Rate: 110
Length in Miles: 3.26	Total Fatalities: 1	Fatality Rate: 6.09

NOTE: Rates are per 100 Million Vehicle Miles

Year	County	Rt Type	Route Num	Low Milelog	High Milelog	ADT	Distance	Vehicle Miles
2005	Chatham	1	0204SP	3.88	3.88	16,570	0.00	0
2005	Chatham	1	0204SP	3.88	6.72	15,300	2.84	43,452
2005	Chatham	1	0204SP	6.72	7.14	15,770	0.42	6,623

Total Vehicle Miles: 50,075	Total Accidents: 26	Accident Rate: 142
Average ADT: 15,361	Total Injuries: 13	Injury Rate: 71
Length in Miles: 3.26	Total Fatalities: 0	Fatality Rate: 0.00

ORIGINAL TO GENERAL FILES

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE P. I. No. 550550- & 0008651, Chatham County STP-00MS(4); CSSTP-0008-00(651) Widening of SR 204 SPUR/Diamond Causeway and Bridge Replacement @ Skidaway Narrows

OFFICE Preconstruction

DATE August 17, 2007

FROM Geneth[illegible] Rice-Singleton, Assistant Director of Preconstruction

TO SEE DISTRIBUTION

SUBJECT **APPROVED REVISED PROJECT CONCEPT REPORT**

Attached for your files is the approval for subject project.

Attachment

DISTRIBUTION:

Brian Summers
Glenn Bowman
Ken Thompson
Michael Henry
Keith Golden
Angela Alexander
Glenn Durrance
Ben Buchan
BOARD MEMBER

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE STP-00MS(4), Chatham County
Widening of SR204 SPUR/ Diamond Causeway
fm Ferguson Avenue to McWhorter Drive
P.I. No. 550550-, 0008651

OFFICE Urban Design

DATE August 9, 2007

FROM James B Buchan, P.E., State Urban Design Engineer

TO Genetha Rice-Singleton, Assistant Director of Preconstruction

SUBJECT **Revised Project Concept Report**

Attached is the original copy of the revised Concept Report for your further handling for approval in accordance with the Plan Development Process (PDP).

The original concept report is being revised to accommodate changes to the typical section and to program a separate project to construct a 2 lane bridge replacement for the existing bascule bridge over Skidaway Narrows. The typical section for the project is being revised from a 20-ft raised median to a 24-ft raised median to meet current GDOT design guidelines. The project units will be also be changed from Metric to English.

By copy of this letter this office requests that a new project be programmed that will replace the existing 2-lane bascule bridge over Skidaway Narrows with a new high-level 2-lane bridge. The above mentioned project, STP-00MS(4) Diamond Causeway, will then widen SR204 Spur to four-lanes and provide the companion parallel bridge over the Skidaway Narrows. The changes are requested by Chatham County to allow for an earlier replacement of the existing bascule bridge over Skidaway Narrows due to environmental constraints of the 4-lane STP-00MS(4) project.

The revised concept report as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Improvement Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE 8/10/07

for Matthew Fowler
State Transportation Planning Administrator

JBB: ASW: sas

Attachment

DISTRIBUTION:

Todd Long, Preconstruction Director, letter only
Glenn Durrence, District 5 Engineer, w/attachment
Brian Summers, Project Review Engineer, w/ attachment
Harvey Keepler, State Environmental/Location Engineer, w/attachment
Keith Golden, State Traffic Safety and Design Engineer, w/attachment
Angela Alexander, State Transportation Planning Administrator, w/attachment
Jamie Simpson, Financial Management Administrator, w/attachment
Paul Liles, State Bridge Design Engineer, w/ attachment

REVISED PROJECT CONCEPT REPORT

STP-00MS(4), Chatham County
SR204 SPUR/Diamond Causeway from Ferguson Avenue to McWhorter Drive
P. I. Number 550550-, 0008651

Need and Purpose: The purpose of this project is to satisfactorily accommodate anticipated future traffic on Diamond Causeway, which provides the only highway access to Skidaway Island. The existing traffic volume on Diamond Causeway is approximately 16,000 vehicles per day. Development on the island is expected to continue and will generate increases in traffic volumes. It is projected that traffic volumes on Diamond Causeway will be 27,300 vehicles per day by 2030.

The proposed widening of SR 204 SPUR/Diamond Causeway was included in the list of selected road improvements in a one percent local sales tax option passed in 1993 to pay for road improvements in Chatham County. The proposed improvement has also been identified as a transportation need in the Chatham Urban Transportation Study (CUTS) Year 2030 Long Range Transportation Plan. Furthermore, the project is programmed in the Fiscal Year (FY) 2007-2009 Transportation Improvement Program (TIP). The project is also included in the Georgia Department of Transportation's six-year Construction Work Program with construction programmed for FY 2010.

The proposed project has been identified in the Chatham-Savannah Bikeway Plan as a high priority bikeway corridor. The current TIP has bike lanes planned along the shoulders of the roadway.

Project Location: This project is located in the southeastern portion of Chatham County in Savannah, Georgia. The proposed length of the project is 3.22 miles along SR 204 SPUR/ Diamond Causeway from Ferguson Avenue to McWhorter Drive.

Description of the approved concept: Project STP-00MS (4) proposes to widen and reconstruct SR 204 SPUR/Diamond Causeway from Ferguson Avenue to McWhorter Drive for a total distance of 3.22 miles. The existing roadway consists of two 12-ft lanes with rural shoulders. There are two existing bridge structures at Moon River and the Skidaway Narrows. The improvement includes four 12-ft travel lanes separated by a 20-ft raised median along with 12-ft rural outside shoulders, 6-ft paved, are proposed in each direction. Bike lanes are incorporated into the paved shoulders. The existing bascule bridge over Skidaway Narrows will be removed and two parallel bridges constructed. A new parallel bridge over Moon River will be constructed and the existing bridge will be widened.

PDP Classification: Major __X__ Minor _____

Federal Oversight: Full Oversight ( ), Exempt (X), State Funded ( ), or Other ( )

Revised Concept Report
SR204 SPUR/ Diamond Causeway
STP-00MS (4), P.I. No. 550550 -, 0008651
Chatham County

Functional Classification: Urban Minor Arterial

U. S. Route Number(s): N/A **State Route Number(s):** SR204 SPUR

Traffic (AADT) as shown in the approved concept:

Current Year: 14,000 (2000) Design Year: 25,000 (2020)

Proposed features to be revised: The proposed features to be revised are the Typical Section and the Bridge Structure over Skidaway Narrows. The typical section proposes a 20-ft raised median and 12-ft rural outside shoulders. The typical section is being revised to comply with the January 7, 2003 Design Guidance letter issued to clarify the application of various design guides and to apply Context Sensitive Solutions to the roadway typical section. This letter states that all arterials with posted speeds greater than or equal to 55 mph or design speeds greater than or equal to 50 mph require the design of a 24-ft raised median, 44-ft depressed median or a positive barrier system. This letter also states that the 10-ft rural shoulder (6.5-ft paved) will be used to accommodate bicyclists and will be used on multi-lane widenings with rural outside shoulders. This design guidance has also been incorporated into the current GDOT Design Policy Manual. The revised typical section proposes a 24-ft raised median and 10-ft outside rural shoulders.

The approved concept report is also being revised to accommodate changes to the bascule bridge over Skidaway Narrows. The environmental commitments for this project state that the construction of Project STP-00MS(5), P. I. No. 550560, Widening SR204 SPUR/Whitfield Avenue, must be completed prior to this project being let. Project STP-00MS(5), Whitfield Avenue, is presently scheduled for letting in August 2009 with an anticipated 24-month construction interval, which means that Project STP-00MS(4), Diamond Causeway, cannot be let before August 2011. For this reason a separate bridge replacement project is being developed to replace the existing two-lane bascule bridge over Skidaway Narrows with a new two-lane high-level bridge structure. Project STP-00MS(4), Diamond Causeway, will widen SR204 SPUR to four-lanes and provide the companion parallel bridge over Skidaway Narrows. The bridge replacement changes are requested by Chatham County to allow for an earlier replacement of the existing bascule bridge over Skidaway Narrows.

Describe the revised feature(s) to be approved: The revised features to be approved are the typical section with a 24-ft raised median and 10-ft outside shoulders and to program a separate project to replace the current bascule bridge over Skidaway Narrows.

Updated traffic data (AADT):

Current Year: 16,000 (2010) Design Year: 27,300 (2030)

Revised Concept Report
SR204 SPUR/ Diamond Causeway
STP-00MS (4), P.I. No. 550550 - , 0008651
Chatham County

Programmed/Schedule:

P.E.: Authorized R/W: 2007 Construction: 2010

VE Study Required: yes (X) no ( )

Revised cost estimates:

1. Construction cost including inflation and E&C, $ 31,436,211 - STP-00MS(4)
2. Construction cost including inflation and E&C, $ 14,808,711 – Bridge Replacement

Is the project located in a Non-attainment area? ..... **Yes** ___X___ **No**

Recommendation: Recommend that the proposed revision to the concept be approved for implementation.

JBB:ASW:lcs

Attachments:

1. Location Map
2. Cost Estimates
3. Typical Section

Concur: _____
Director of Preconstruction

Approve: _____
Chief Engineer

BUCHAN
BOWMAN
RICHARDSON Butch (Sonya)
VanMETER
OTHER
GROUPS
FILE

Received 6-2-06 GMS

Department of Transportation

State of Georgia

Interdepartmental Correspondence

RECEIVED
JUN - 2 2006
URBAN DESIGN

FILE R/W Cost Estimate PC / GAM

OFFICE Atlanta

DATE May 31, 2006

FROM Phil Copeland, Right of Way Administrator

TO Ben Buchan, State Urban Design Engineer
ATTN: Sonya Sykes

352

SUBJECT **Preliminary Right of Way Cost Estimate**
Project: STP-00MS(4)Chatham
P.I. No.: 550550
Description: SR 204 / Diamond Causeway from Ferguson Avenue to McWhorter Drive

Per your request, attached is a copy of the approved Preliminary Right of Way Cost Estimate on the above referenced project.

Please note the area of Required R/W was furnished with your request.

If you have any questions, please contact Jerry Milligan at the West Annex Right of Way Office at (770) 986-1541.

PC::GAM
Attachments
c: Brian Summers, Engineering Services
Wilhelmina Mueller, R/W
Windy Bickers, Financial Management
File

CONCEPT REPORT RIGHT OF WAY

COST ESTIMATE

Date:	May 18, 2006		
Project:	STP-OOMS (4)	**P.I. Number:**	550550
Existing/Required R/W:	200' + / 200' +	**No. Parcels:**	10
Project Termini:	East side of Ferguson Avenue to west side of McWhorter Drive/Green Island Road		
Project Description:	Widening of Diamond Causeway/SR204 Spur including replacement of the Moon River Bridge and the Intracoastal Waterway drawbridge with fixed bridges. Some widening and improvement will be required at side streets. Note that only ten property acquisitions are anticipated due to earlier corridor establishment. The eastern end of the Project impacts several parcels affiliated with The Landings, a gated planned unit development community.		

Land:

(Residential-Lots/Smaller Ac.): 0.035 AC x $50,000/AC =	$ 1,750
(Residential-Lots/Marsh View Influence): 0.035 AC x $100,000/AC =	$ 3,500
(Residential/Landings): 0.02 AC x $150,000/AC =	$ 3,000
(Residential/Landings): 0.11 AC x $150,000/AC x 0.25 (TCE) =	$ 4,125
(Commercial): 0.11 AC x $653,400/AC x 0.25 (TCE) =	$17,969
TOTAL:	$30,344

Improvements:

Buildings:	$ 0	
Minor site improvements (paving, signs, etc.):	$10,000	
TOTAL:		$10,000

Relocation:

Not applicable

TOTAL:	$ 0

Damages:

Not applicable

TOTAL: $ 0

Net Cost:	$ 40,344
Plus Scheduling Contingency (55%):	$ 22,189
Plus Admin./Court Cost (60% of 2 lines above):	$ 37,520
Plus Inflation Factor (40% of 3 lines above):	$ 40,021
	$140,074

TOTAL COST: $140,000 (R)

Notes: There are no displaces and only marginal acquisitions. The acquired sign may turn out to be clear of the acquisition once detailed finalized right of way plans become available. Note that most right of way necessary for this project is already acquired and only ten parcels with potential acquisitions are identified.

55% adjustment for scheduling contingencies between date of estimate and project implementation. There are additional adjustments for unforeseen management and condemnation costs as well as for inflation.

Prepared by: _____, Moreland Altobelli Associates

Approved by: _____, GDOT R/W

SUPPORTING SALES –
DIAMOND CAUSEWAY/SR204 WIDENING

Residential-Lots/Smaller AC

Tax PIN	Location	Size	Date	Sale Price	Price/AC
1-300-1-18	2602 Salcedo	0.48 ac.	8-16-02	$55,000	$114,583
1-378-3-19	8708 Ferguson	0.52 ac.	1-13-04	$70,000	$134,615
1-501-1-9C	9317 Whitfield	0.63 ac.	1-31-03	$32,000	$50,794
1-518-2-13	25 Railroad	0.78 ac.	12-13-03	$68,000	$87,179
1-517-1-1, 2, 2A	Whitfield	0.92 ac.	11-22-02	$43,000	$46,739
1-508-2-3	1 Shipyard	1.04 ac.	1-9-02	$58,000	$55,769

Notes: These are larger than typical approximate one-half acre or less "lots" but are still normally used for individual residential development. Unit of comparison for these properties in this market is typically per lot or per acre. Note that 9317 Whitfield Avenue is the fair market sale of a remnant from an earlier Truman Parkway acquisition. This collection of sales is generally superior to the non-water influence Pin Point properties.

Approximately one-half of the acreage at Pin Point Road appears to be in smaller residential sites without apparent marsh views or water influence. The unit value for these properties is estimated at **$50,000 per acre.**

Residential-Water Influence

Tax PIN	Location	Size	Date	Sale Price	Price/AC
1-504-1-23	Whitfield	0.72 ac.	1-27-06	$125,000	$173,611
1-504-1-24	Whitfield	1.6 ac.	2-10-06	$200,000	$125,000
1-378-3-34	Ferguson	3.08 ac. HG	1-31-01	$164,500	$53,409
1-338-1-4	Green Island	5.02 ac. HG	10-15-00	$375,000	$74,701
1-504-1-4	Whitfield	4.1 ac. HG	7-26-01	$325,000	$79,268
1-501-1-3	Whitfield	2.4 ac. HG	5-15-02	$200,000	$83,333

Notes: These are residential sales with water and/or marshfront influence from the southern portion of Chatham County. Unit prices are per high ground areas with unbuildable marsh not included where it was possible to separate it out. Scarcity is making this a property type with rapidly advancing values in Chatham County. The 2.4-acre Whitfield Avenue sale had a poor quality and condition 1,300 SF house on it at the time of sale. The house was 77 years old and considered as salvage by the parties to the sale. It has subsequently had a demolition permit placed on it. The buyers later changed plans and pulled permits to add to it and to substantially reconfigure the original structure.

The two smallest Whitfield sales have been split out from the earlier 4.1-acre sale. The recent higher value sales are indicative of trends with water influence properties. However, they have direct water influence whereas the Pin Point properties appear to have amenity views only.

Approximately one-half of the acreage at Pin Point Road features marsh views but does not appear to feature direct water access. **$100,000 per acre** is utilized as the unit value for this property type.

Residential Assemblage (The Landings)

Tax PIN	Location	Size	Date	Sale Price	Price/AC
1-163-2-16	Hathaway	± ½ ac.	1-30-06	$125,000	$250,000
1-259-4-15	Riding	± ½ ac.	2-24-06	$145,010	$290,020
1-202-1-4	Loblolly	± ½ ac.	1-6-06	$195,000	$390,000
1-202-5-16	Flying Jib	± ½ ac.	1-6-06	$200,000	$400,000
1-201-2-10	Half Penny	± ½ ac.	1-17-06	$190,000	$380,000
1-200A-4-30	Pennystone	± ½ ac.	1-3-06	$230,000	$460,000
1-315-3-14	Sparnel	± ½ ac.	1-25-06	$250,000	$500,000
1-259C-1-13	Broomsedge	± ½ ac.	1-9-06	$251,500	$503,000
1-260B-2-1	Springpine	± ½ ac.	2-24-06	$261,615	$523,230
1-191-1-5	Deer Creek	± ½ ac.	1-13-06	$265,000	$530,000

Notes: Several parcels on the eastern portion of the Project are affiliated with The Landings, a planned unit development gated residential community. The affected sites have no readily available comparable sales but are estimated by reference to lots in the community that would allow for consideration of potential assemblage to adjacent properties. That is, the values of adjacent and nearby properties are used as a best estimate for the value of the acquired land.

The first four sales are "interior lot" sales without any golf or water proximity influence. The price range is higher for the last six sales that do feature either golf or water influence. Lots in The Landings are typically at or slightly above one-half acre in size. The Sparnel Road lot is the exception to this norm as it is a "patio" lot and is less than one-half acre in size. These sales are all very recent as the limited number of remaining available lots coupled with the heated real estate market has resulted in intense sales activity recently in The Landings.

The acquisition areas that are within The Landings and associated parts of Skidaway Island are atypical in that the larger parcels are either large sites held by Churches or are part of The Landings common areas. They would not likely ever be developed as residential lots but the adjacent residential lot values are the best guide for estimating an assemblage value for the land acquired. The range of value per acre is $250,000 to $530,000. This rate would not be paid by adjoining owners seeking to enlarge their sites, however. The appraiser estimates an assemblage rate for these properties at **$150,000 per acre**. This rate is considered appropriate for the two corners where State Park Road meets Diamond Causeway as well as the southwest corner of Diamond Causeway and Green Island Road.

The Tax Assesor currently lists many of the Church sites in the area at $80,000 per acre and the land acquired for The Marshes that lies behind the Church properties sold for $66,614 per acre three years ago. This unit price seems low due to its age as well as due to the fact that it is removed from Diamond Causeway and has no direct exposure to the main road.

Commercial

Tax PIN	Location	Size	Date	Sale Price	Price/SF
2-782-4-1	Middleground	0.617 ac.	1-15-03	$160,000	$7.63*
2-782—5-9, 10, 11	Abercorn	2.25 ac.	4-30-01	762,500	$7.78
3-4-13-5	Victory Dr.	0.785 ac.	2-28-01	$400,000	$11.70
2-863-1-19	Abercorn/Rio	1.2493 ac.	12-18-02	$1,300,000	$23.89
5-16-2-10	US80/Brighton	0.816 ac.	5-1-06	$462,000	$13.00
2-490-5-30, 31	Stephenson	1.65 ac.	10-12-05	$1,184,700	$16.50

Notes: This is a broad spectrum of relatively recent commercial sales in Chatham County. They have been developed as follows in order: a multi-tenant strip center, a medical office complex, a convenience store with gasoline sales, a Savannah Mall outparcel developed with a bank branch office, an Autozone store site currently being prepared and a site being cleared for apparent office/retail development.

The commercial property on the project is The Landings Association common area adjoining the Village Station at the entrance to The Village on Skidaway Island (northeast corner of Lake Drive and Diamond Causeway). Like the other assemblage value described above, this property is felt to derive value from the adjoining parcel (commercial use). The common area has inappropriate shape and insufficient depth for stand-alone use. No commercial sales have taken place in the immediate vicinity as most of the commercial uses are based on ground leases with various J.C. Lewis family foundations.

The Middleground sale is marked with an asterisk as the unit price reflects costs to extend sewer and demolish an old non-contributory improvement. Diamond Causeway has a much lower traffic count than Victory Drive or Abercorn Street. This is the only commercial spot in this vicinity, however, and the site must be passed by all traffic traveling to and from Skidaway Island. Also, this limited commercial area tends to appeal to upscale development due to the large number of retired households in The Landings community. Therefore, placing most emphasis on the last two (and most recent) sales, the appraiser has conservatively set the unit value for this property type assemblage at **$15.00/SF**. For calculation purposes, this equates to **$653,400 per acre**.

Value Engineering Process

VALUE ENGINEERING PROCESS

Introduction
This report summarizes the analysis and conclusions by the PBS&J Value Engineering team as they performed a VE Study during the period of October 9 through October 12, 2007 in Atlanta, Georgia, for the Georgia Department of Transportation.

The Value Engineering Study team and its leadership were provided by PBS&J. This VE Team consisted of the following:

Les M. Thomas, P.E., CVS-Life	Certified Value Specialist
Luke Clarke, P.E.	Highway Design Engineer
Ramesh Kalvakaalva, P.E.	Structural Design Engineer
Kevin Martin, P.E.	Highway Construction Specialist
Randy S. Thomas, AVS	Assistant Team Leader

The Value Engineering Team followed the Seven Step Value Engineering job plan as promulgated by SAVE International. This Seven Step job plan includes the following:

- **Investigation/Information Phase** – during this phase of the VE Team's work, the team received a briefing from the Georgia Department of Transportation (GDOT) design team and staff. This briefing included discussions of the design intent behind the project, the cost concerns, the physical project limitations. In the working session that followed, the VE Team developed cost models from the cost data provided by the designers and familiarized themselves with the construction drawings and other data that was available to the team. Some of the representative project information (concept report, cost estimate, and special provisions) may be found in the tabbed section of this report entitled ***Project Description***. Following this current narrative the reader will also find a cost model done in the Pareto fashion, i.e., identifying the highest costs down to the lowest costs for the larger construction cost elements. This cost model, developed by the VE Team, was used by the VE Team to help focus their week of work. The headings on the Pareto Chart also were used as headings for creative phase activities.

- **Analysis Phase** – during this phase the VE Team determined the "**Functions**" of the project. This was accomplished by reviewing the project from the simplest format in asking the questions of "What is the project suppose to do?", and "How is it suppose to accomplish this purpose? In the Value Engineering vernacular, the answers to these questions are cast in the form of active verbs and measurable nouns. These verb/noun pairs form the basis of the function analysis which distinguishes a Value Engineering effort from a potentially damaging cost cutting exercise.

- The important functions of the project were identified as follows:

    - **Project Objective/Goals**
        - **Improve Level of Service**
        - **Increase Capacity**
        - **Separate Traffic**
        - **Provide for future growth**

    - **Project Basic Functions**
        - **Replace Bridges**
        - **Construct Additional Traffic Lanes**
        - **Construction Additional Turn Lanes**
        - **Provide Separation of Traffic**
        - **Provide "U" Turn Lanes**
        - **Provide Traffic Controls**

- **Speculation Phase -** The VE team performed a brainstorming session to identify ideas that might help meet the project objectives:

    - Maintain Level of Service
    - Improve Level of Service
    - Improve Safety
    - Increase Capacity
    - Reduce construction and life cycle costs
    - Reduce the time of construction

    This brainstorming session initially identified numerous ideas that were then evaluated in the Judgment phase. The reader will find the creative worksheets enclosed. These same work sheets were also used to record the results of the Judgment/Evaluation Phase.

- **Evaluation Phase** – Once the VE Team identified the creative ideas, it was necessary to decide which alternatives should be carried forward. This is the work of the Evaluation or Judgment Phase. The VE Team reflected back on the project constraints and objectives shared with the team by the owner's representatives, in the kick-off meeting on the first day of the workshop. From that guidance, the team selected ideas that they believed would improve the project by a vote process.

- Following that selection process, the VE Team used the following values as measures of whether or not an alternative had enough merit to be carried forward in the VE process:

    - Construction Cost Savings
    - Maintainability
    - Ability to Implement the Idea
    - General Acceptability of the Alternatives
    - Constructability

    Based on these measurement sticks, the VE Team evaluated the alternatives and graded them from 5 (Excellent) down to 1 (Poor). Other notes about the alternatives are annotated at the bottom of the enclosed creative and evaluation sheets.

- **Development Phase** – During this phase, the VE Team developed each of the selected design alternatives. This effort included a detailed explanation of the idea with sketches as appropriate to clarify the idea from the original concept, advantages and disadvantages, a technical explanation and an estimation of the cost and resultant savings if implemented. (see the tabbed section – Study Results)

- **Recommendation Phase** – During this phase the VE Team reviews the alternative ideas to confirm which ones are appropriate for the project, have an opportunity for success and which will improve the value of the project if implemented.

- **Presentation Phase** – As noted earlier, the team made an informal "out-briefing" on the last day of the workshop, designed to inform the Owners and the Designers of the initial findings of the VE Study. This written report is intended to formalize those findings.

The following **Function – Worth - Cost** Analysis, was utilized to focus the team and stimulate brainstorming; a copy of the **Attendance Sheets** is also attached so that the reader can be informed about who participated in the Study proceedings.

FUNCTION ANALYSIS AND COST-WORTH

PROJECT: **GEORGIA DEPARTMENT OF TRANSPORTATION** SHEET NO.: **1 of 2**
Project: CSSTP-0008-00(651) Bridge Replacement @ Skidaway Narrows, P.I. 0008651 Chatham County

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
1	**OVERALL PROJECT**	Increase	Traffic Capacity	B	14,808,710	9,000,000	C/W = 1.65
		Facilitate	Access	B			
		Enhance	Safety	S			
2	**SKIDAWAY NARROWS- NEW BRIDGE**	Cross	Skidaway Narrows	B	7,728,000	4,805,000	C/W = 1.6
		Increase	Capacity	S			
		Enhance	Safety	S			
3	**EARTHWORK (EW)**	Support	Road	S	2,000	1,800	C/W = 1.11
5	**DRAINAGE (DR)**	Convey	Storm Water	B	20	20	C/W = 1.0
		Facilitate	Utilities	S			

Function defined as: **Action Verb** **Measurable Noun**

Kind: B = Basic S = Secondary RS = Required Secondary HO = Higher Order LO = Lower Order

Cost/Worth Ratio = (Total Cost ÷ Basic Worth)

FUNCTION ANALYSIS AND COST-WORTH

PROJECT: **GEORGIA DEPARTMENT OF TRANSPORTATION**
Project: CSSTP-0008-00(651) Bridge Replacement @ Skidaway Narrows, P.I. 0008651 Chatham County

SHEET NO.: **2 of 2**

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
6	**CLEARING & GRUBBING**			S	500	500	C/W =1.0
7	**EROSION CONTROL**			S	137	137	C/W =1.0
8	**GUARDRAIL & ANCHORING SYSTEMS**	Enhance	Safety	B	200	200	C/W = 1.0
9	**TRAFFIC CONTROL**	Facilitate	Safe Construction	S	1,276,000	400,000	C/W = 3.19
10	**SIGNING & MARKING**	Enhance	Directions	S	74	74	CW =1.0
		Channelize	Traffic	S			
11	**GRASSING**	Stabilize	Earthwork	S	14	14	CW =1.0
12	**REMOVE BRIDGE**	remove	bridge	B	650	100	CW =6.5

Function defined as: **Action Verb** **Measurable Noun**

Kind: B = Basic HO = Higher Order
S = Secondary LO = Lower Order
RS = Required Secondary

Cost/Worth Ratio = (Total Cost ÷ Basic Worth)

FUNCTION ANALYSIS AND COST-WORTH

PROJECT: **GEORGIA DEPARTMENT OF TRANSPORTATION** SHEET NO.: **1 of 2**

STP-00MS(4) - PI #550550 Widening of SR 204 SPUR/Diamond Causeway, Chatham County

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
1	**OVERALL PROJECT**	Increase	Traffic Capacity	B	31,436	29,000	C/W = 1.08
		Facilitate	Access	B			
		Enhance	Safety	S			
2	**RIGHT OF WAY (ROW)**	Accommodate	Widening	B	1,000	1,000	CW =1.00
		Facilitate	Utilities	RS			
		Accommodate	Amenities	S			
3	**ROADWAY (RD)**	Increase	Capacity	B	4,500	4,000	C/W = 1.12
		Enhance	Safety	S			
4	**EARTHWORK (EW)**	Support	Road	S	2,000	1,800	C/W = 1.11
5	**DRAINAGE (DR)**	Convey	Storm Water	B	900	900	C/W = 1.0
		Facilitate	Utilities	S			

Function defined as: **Action Verb** **Measurable Noun**

Kind: B = Basic S = Secondary RS = Required Secondary HO = Higher Order LO = Lower Order

Cost/Worth Ratio = (Total Cost ÷ Basic Worth)

FUNCTION ANALYSIS AND COST-WORTH

PBSJ

PROJECT: **GEORGIA DEPARTMENT OF TRANSPORTATION**
STP-00MS(4) - PI #550550 Widening of SR 204 SPUR/Diamond Causeway, Chatham County

SHEET NO.: **2 of 2**

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
6	**CLEARING & GRUBBING**			S	600	600	C/W =1.0
7	**EROSION CONTROL**			S	460	460	C/W =1.0
8	**GUARDRAIL & ANCHORING SYSTEMS**	Enhance	Safety	B	300	300	C/W = 1.0
9	**TRAFFIC CONTROL**	Facilitate	Safe Construction	S	2,900	500	C/W = 5.8
10	**SIGNING & MARKING**	Enhance	Directions	S	476	476	CW =1.0
		Channelize	Traffic	S			
11	**MOON RIVER BRIDGE**	Cross	River	B	3,876	3,000	CW =1.3
12	**NARROWS BRIDGE**	Cross	River	B	6,440	4,600	CW =1.4

Function defined as: **Action Verb** **Measurable Noun**

Kind: B = Basic S = Secondary RS = Required Secondary HO = Higher Order LO = Lower Order

Cost/Worth Ratio = (Total Cost ÷ Basic Worth)

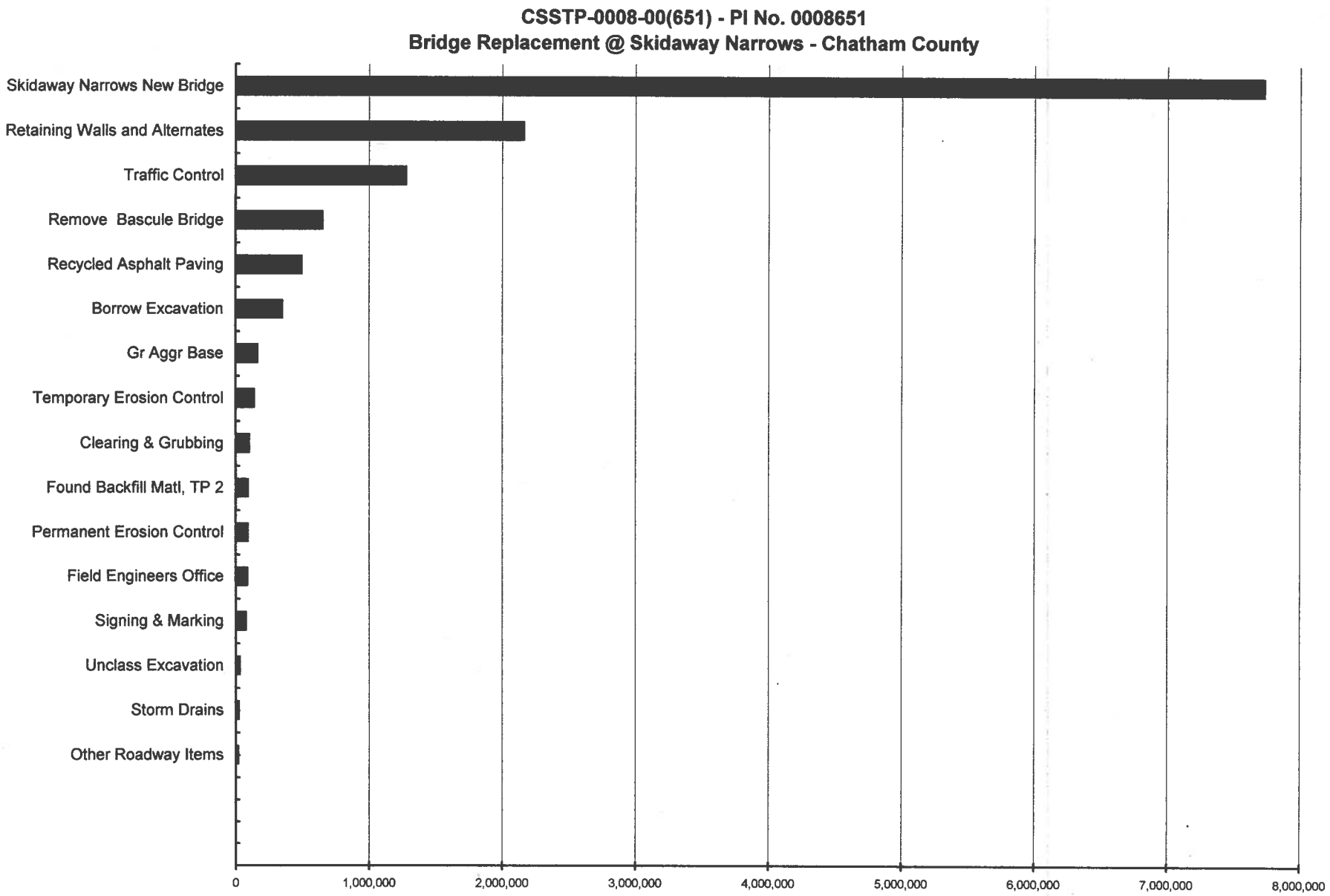
PARETO CHART - COST HISTOGRAM

PROJECT: Bridge Replacement @ Skidaway Narrows - CSSTP-0008-00(651) - PI No. 0008651

Chatham County, Georgia

PROJECT ELEMENT		COST	PERCENT	CUM. PERCENT
Skidaway Narrows New Bridge		7,728,000	57.40%	57.40%
Retaining Walls and Alternates		2,160,000	16.04%	73.45%
Traffic Control		1,276,200	9.48%	82.93%
Remove Bascule Bridge		650,000	4.83%	87.76%
Recycled Asphalt Paving		493,000	3.66%	91.42%
Borrow Excavation		350,000	2.60%	94.02%
Gr Aggr Base		164,000	1.22%	95.24%
Temporary Erosion Control		137,240	1.02%	96.26%
Clearing & Grubbing		100,000	0.74%	97.00%
Found Backfill Matl, TP 2		90,000	0.67%	97.67%
Permanent Erosion Control		88,470	0.66%	98.32%
Field Engineers Office		85,000	0.63%	98.96%
Signing & Marking		74,540	0.55%	99.51%
Unclass Excavation		30,000	0.22%	99.73%
Storm Drains		20,660	0.15%	99.89%
Other Roadway Items		15,354	0.11%	100.00%
Subtotal		**$ 13,462,464**	**100.00%**	
E & C Rate @ 10%	INCL	**$ 1,346,246**		
Subtotal =		**$ 14,808,710**		
Total Construction Cost =		**$ 14,808,710**		
Right-of-Way =				
Reimb. Utilities =				
TOTAL		**$ 14,808,710**	**Comp Mark-up:**	10%

Pareto Chart 2



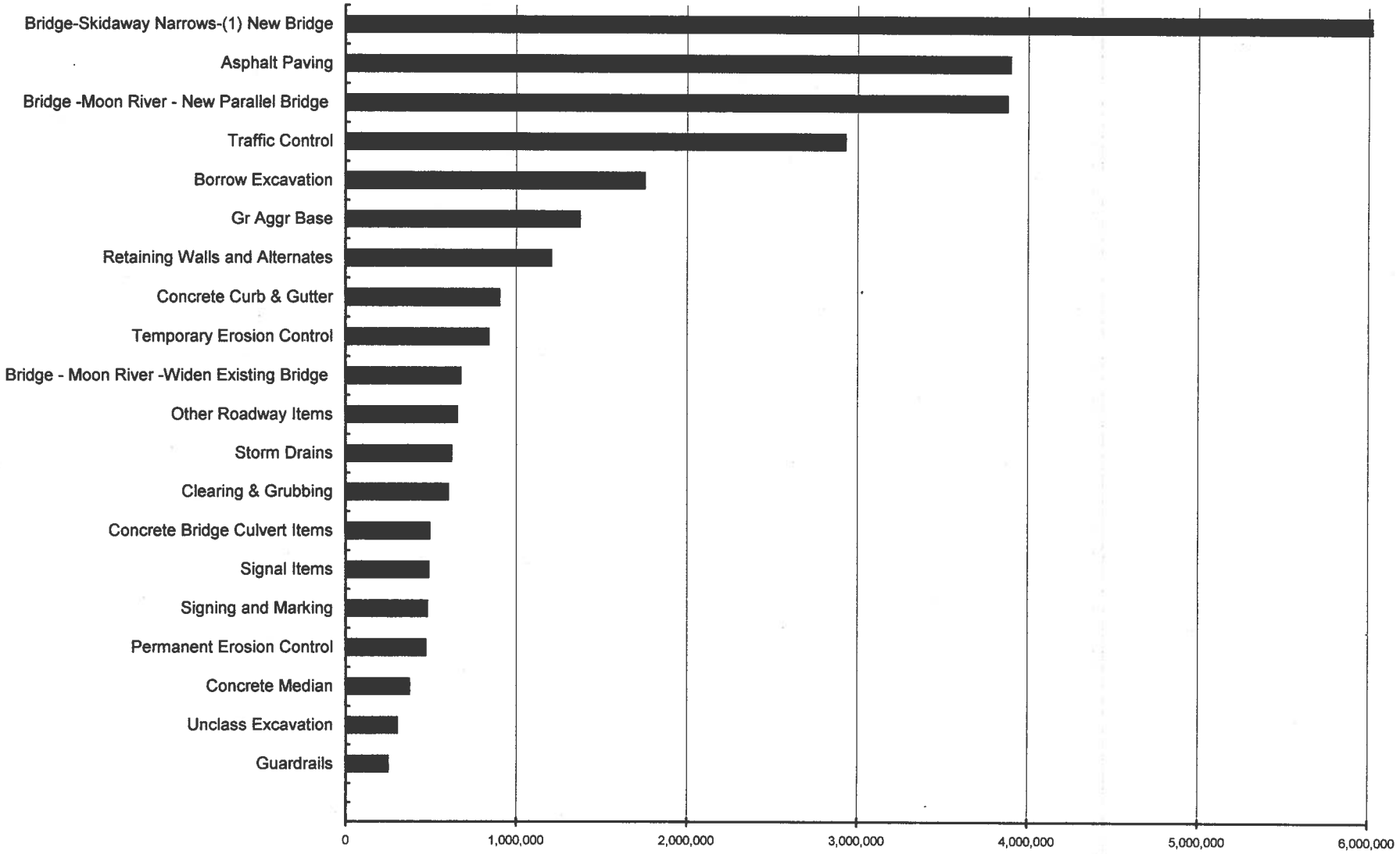
PARETO CHART - COST HISTOGRAM

PROJECT: Widening of SR 204 SPUR/Diamond Causeway - STP-00MS(4) PI No. 550550

Chatham County, Georgia

PROJECT ELEMENT	COST	PERCENT	CUM. PERCENT
Bridge-Skidaway Narrows-(1) New Bridge	6,440,000	22.53%	22.53%
Asphalt Paving	3,893,600	13.62%	36.16%
Bridge -Moon River - New Parallel Bridge	3,876,000	13.56%	49.72%
Traffic Control	2,926,200	10.24%	59.96%
Borrow Excavation	1,750,000	6.12%	66.08%
Gr Aggr Base	1,370,200	4.79%	70.88%
Retaining Walls and Alternates	1,204,000	4.21%	75.09%
Concrete Curb & Gutter	900,000	3.15%	78.24%
Temporary Erosion Control	836,960	2.93%	81.17%
Bridge - Moon River -Widen Existing Bridge	673,200	2.36%	83.53%
Other Roadway Items	652,574	2.28%	85.81%
Storm Drains	619,500	2.17%	87.98%
Clearing & Grubbing	600,000	2.10%	90.08%
Concrete Bridge Culvert Items	490,040	1.71%	91.79%
Signal Items	484,800	1.70%	93.49%
Signing and Marking	476,590	1.67%	95.15%
Permanent Erosion Control	467,360	1.64%	96.79%
Concrete Median	372,000	1.30%	98.09%
Unclass Excavation	300,000	1.05%	99.14%
Guardrails	245,350	0.86%	100.00%
Subtotal	**$ 28,578,374**	**100.00%**	
E & C Rate @ 10% INCL	**$ 2,857,837**		
Subtotal =	**$ 31,436,211**		
Total Construction Cost =	**$ 31,436,211**		
Right-of-Way =	**0**		
Reimb. Utilities =	**0**		
TOTAL	**$ 31,436,211**	**Comp Mark-up:**	10%

STP-00MS(4) - PI No. 550550 - Widening of SR 204 SPUR/Diamond Causeway
Chatham County



DESIGNER PRESENTATION

MEETING PARTICIPANTS

Geogia Department of Transportation			October 9, 2007	
STP-00MS(4) & CSSTP-0008-00(651) - P.I. Nos. 550550 & 0008651 Chatham County				
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VE TEAM PRESENTATION

MEETING PARTICIPANTS

Geogia Department of Transportation			October 12, 2007	
STP-00MS(4) & CSSTP-0008-00(651) - P.I. Nos. 550550 & 0008651 Chatham County				
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CREATIVE IDEA LISTING & EVALUATION

PBSJ

PROJECT:	**Georgia Department of Transportation** **CSSTP-OO08-00(651) - PI No. 0008651** **Bride Replacement @ Skidaway Narrows**	SHEET NO.:	1 of 2

NO.	IDEA DESCRIPTION	RATING
	Skidaway Narrows New Bridge (SNNB) – 48'	
SNNB-1	Build single structure, as opposed to dual structure	4
SNNB-2	Use sheet pile for shoring in lieu of temporary MSE Wall	5
SNNB-3	Use 8' outside shoulders	4
SNNB-4	Increase vertical grade to reduce bridge length and impact to marina	2
SNNB-5	Use longer approach spans to reduce mitigation	DS
SNNB-6	Phase removal of existing Bascule Bridge	2
SNNB-7	Minimize new bridge offset from the existing bridge	1
SNNB-8	Approach DNR about use of "removed bridge" in reef building as a mitigation tool	DS
	Skidaway Narrows Roadway (SNRW)	
SNRW-1	Modify western tie geometry to utilize more existing pavement	4
SNRW-2	Further develop Traffic Control Plan to minimize Traffic Control costs/avoid duplication	DS
SNRW-3	Expand eastbound acceleration lane to accommodate marina traffic	DS
SNRW-4	Move the PVC east to use existing marina entrance	3

Rating: 1→2 = Generally not acceptable; 3 = Little Opportunity for Positive Change; 4→5 = Most likely to be Developed; DS = Design Suggestion; ABD = Already Being Done

CREATIVE IDEA LISTING & EVALUATION

PBSJ

PROJECT:	**Georgia Department of Transportation –STP-OOMS(4)** **Chatham County PI No. 550550**	SHEET NO.:	**2** of 2

NO.	IDEA DESCRIPTION	RATING
	Diamond Causeway (DCRW)	
DCRW-1	Retain "Jug Handle"	DS
DCRW-2	Move west end pier parking to north side of roadway – eliminate east crossover	DS
DCRW-3	Shift transition to Skidaway Island State Park to the west	DS
DCRW-4	Consider use of "eyebrows" at potential U-turn locations (Pin Point Community)	DS
DCRW-5	Close median opening at Sta 166+00	DS
DCRW-6	Extend Moon River easterly access parking to the west	DS
DCRW-7	Utilize 10' median with positive barrier from Sta 180+00 to Sta 242+00	4
	Moon River Bridge (MRB)	
MRB-1	Modify existing deck in lieu of widening	5
MRB-2	Route pedestrian and bike lane onto new bridge in lieu of widening existing bridge	DS
MRB-3	Construct a single structure new bridge, utilizing existing bridge for bike and pedestrian traffic	2
MRB-4	Re-evaluate existing structure for new bridge	DS
	Diamond Causeway/Skidaway Narrows Bridge (DCSNB)	
DCSN-1	Use 8' wide outside and 4' inside shoulders in lieu-of 10' shoulders	4
DCSN-2	Increase vertical grade to reduce impact to marina and reduce bridge length	2
DCSN-3	Use longer approach spans to reduce mitigation	DS
DCSN-4	Minimize new bridge offset from existing	1
DCSN-5	Use sheet pile for Phase I construction and salvage after Phase II is complete	2

Rating: 1→2 = Generally not acceptable; 3 = Little Opportunity for Positive Change; 4→5 = Most likely to be Developed; DS = Design Suggestion; ABD = Already Being Done